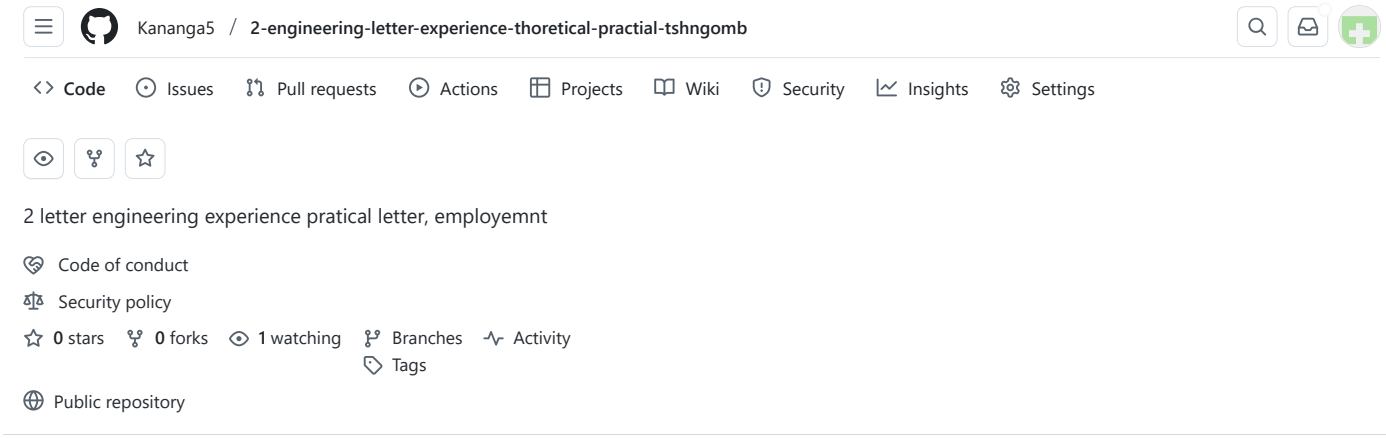
Kananga5 / 2-engineering-letter-experience-thoretical-practial-tshngomb
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2-engineering-letter-experience-thoretical-practial-tshngomb

2 letter engineering experience pratical letter, employemnt Incident logged on 2024/06/23 2:12:06 PM (UTC 02:00) - Africa/Johannesburg; was resolved on 2024/06/25 9:20:59 AM (UTC 02:00) - Africa/Johannesburg Inbox

csd@treasury.gov.za 10:21 AM (1 hour ago)

to me

Dear Tshingombe Fiston,

We are committed to providing you with an EXCELLENT CUSTOMER SERVICE experience. We would like your feedback about the manner in which we handled your query/request. Click here to fill out survey

Incident# 1900050 has been resolved: Resolution Kindly refer to email sent from csd@treasury.gov.za

Incident # 1900050 Summary: CSD Registration Process Customer Name: Tshingombe Fiston Location: Priority: 5 Status: Resolved Category: CSD Registration Process Resolved On: 2024/06/25 9:20:59 AM (UTC 02:00) - Africa/Johannesburg Description Important: This email originated from an external sender. Please do not click on email links or open attachments you did not expect. When in doubt, please contact the ICT Service Desk.

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tshingombe fiston > May 29, 2024, 6:26 PM

-Address:postal. -Francis bard Pretoria Department of Higher Education and Training 123 Francis Baard Street, Pretoria Central Room 506_012 312 5440

To:St peace college and instituts, tvet Dhet -Date :subject :completion letter : Practice experimental log book.

-1. To concerne This letter serves confirm .Mr was participations in the work integrated learning programme of department : Dhet research assessment irregularity national examination nated n4 to additional information and workbased on visited circular practice external on line job work practice on department of energy minimal compagny career CVS and industrial portal council work city power day visited on line Facebook,Gmail badges,Eskom career day 28day appointment,sarb career engineering artisan electrical electronics engineering,Microsoft

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-1.1Section one

1.2 Assist in the capture /profiling of job application career portal log activities on line internet project data development engineer path azure GitHub Microsoft autocad Autodesk Microsoft -engineering design analyse.kheta advice national career ,investigation system visual studio development.ms office . engineering electrical automate programmation computing trade theory assessment subject time table allocation topics.enginering drawing n autocad topics relate nated Eaton assessment 2.typing of memos and minutes exam papers topics assessment self assessment draw sharp table engineering electrical planing. 1.2.design of reporting template: tableexcell ups engineering electrical software. -management and training assessment panel wiring electrical -assiste with headling career filing . -capturing of career information system.database recruitment informers investigation electrical data source reports.career portal advices . -sorting distribution files information management system Education irregularite database system Portofilio. -allocated consultation and information record management system database assessment.engineering -handing inquired admnise communication skill , orientation industrial design template attandance registration on line form visual basic ,excell ms word . -relation labour handing of Portofilio survey interpretation status .. -duty monitoring assessment moderator asssessor engineering electrical n studies and level irregularite material suspension transcript marksheet years . Staff, daily staff delegation compilation of duty . -monitor -filing of retrieval of engineering assessment transcript record instituts saqa college topics project azure back log ..hrs practitioner..

1.3.library and information service :sciebono career center and St peace college info class re rwiten "Engineering science career" , -research process : reseach method plan and disc ,collected and collected capture analyse collaborate and create management store preserve share and publish assessment textbook topic, monitoring and evaluation,emerging qualitative and quantitative missing text book engineering electrical. -research methodology engineering electrical topics vs research triangle.qualitarive methods quantitative methods ethnographic participate observations studies depth description engineering communication source data engineering ethnographic r group, participate research involving esearch case studies engineering electrical,source. -textual critical in social engineering,survey aim to provide overview, -experimental design laboratory controlled conditions physic psychometric technical ,field natural experimental design ,aim to provide a board of a representative sample of large . -secondary data analysis using existing data it aim. -conceptual analyse meaning of ward or concept clarification theory buildings on role building studies,literature review studies . -types of qualitative research design ground theory research narrative.hiatorical case studies and phenomenology design engineering field. -grounded theory is systematic procedure of data analysis typically associated.phenological studies design engineering electrical,case study research advanced field, -wath are research method in library data collection first is to choose a suitable methode for collecting primarily data depending reseach topics objectives methode interview observations and case subject.. -step of library research process identify and development topics do preliminary locate material evaluation make note ,rwiten papper ,import method for data collection ,survey quantitative interview library. .1.4.1.technical documentation in simple steps: business files and data during operation documents size store career control access keeps record and analysis career outline engineering step on line save download day part time learning. -consider a degree or certificate. -develoo skill on experience. -primairy :collecting record work clerk retrieved engineering career . -cataligi g data files and digitalise create file documentation organisation job engineering research analysis thing .technical knowledge soft ward .help desk technician types customer service , responding to customer support inquiries and documents feedback from customers .Google it support rating . -research faculty teach and learning research lab learning environment clinical simulation practice of simulation teach to develop outcome student team work communication self assessment, simulation base education la assessment,task training task oriented , simulation lab ,booking Education technologie, engineering science career electrical module engineering board

-work purpose lab work conduct of experience,prepare work ,note book, of log book prepare rwiten engineering general format engineering, introduction theory procedure methode ,result vocational career trading guidelines.

2. Section two.

Department energy mineralogie compagni ,Eskom -related minimum experience. Technical experience and engineering related technologies, skill and competencies leader . -knowledge: relate technologie design codes and standards , engineering theory relevant processes ,police guidelines and legislation engineering design. -technical problem solving co technical cost analysis presentation. Key responsibilities , resolve complex integrated engineering problem variations integrate life cycle plan for . Provide special engineering,advice assistant manager engineering projects modification.perform technical and financial evaluation

-Power Serie books on line research team future of power engineering lie experience engineering. Topics Application post :28days booking confirmation shared successful or unsuccessful plant generation substation power station transmission metering post megawatts financial

confirmation shared successful or unsuccessful.plant generation substation power station transmission metering post megawatts financial .

-planing design construction of overhead power line principle system planning .insulation . _fundamental and practice of overhead line maintence . theory of overhead line management topics , implementation of work sole inspection -practical guide to outdoor council engineering high voltage characteristics electrical test specific flowchart inspector. -theory design maintence and life management of power transformer,theory principle and practices of design , fabrication overhead power line structure of towers moves and diagrams. -power line tower one testing . -transmission theory design and performance role ,in electrical design ,AC DC, ,hybrid,loss may , economic DC line conductor , conductor charge . -thermodynamic for students practicing engineering under thermo essential for power plant design and volume , outline key thermodynamics, Princit steam and plant compressor refrigeration plant entropy engineering to design thermal fluid machine theory to plant operating and new design is -applied system dynamics with south Africa case studies system methodology for studies manàge change over relief respect flow accumulation material control the flow industrial.

-practionner and sustainable mentorship and coaching book

- 2.2 .purpose career explanation : course customers training manufacture execution scheineder electric PLC introduction to PLC level 1, ecostruxure control exper programming level 2,intermediate introduction machine ,ecostruxure process expert hybrid process, supervisor control 2data acquisition software configuration workspace situation , network connectivity control ethernet io ,human machine HMI programmation, telemetry truo licensed radio remote connect , -motore control introduction to variable drives altivart process system ,low voltage electrical distribution l.v.e.d ,SPD ,surge protection device ,on demand. -low voltage low voltage distribution l.v.e SPD ,medium voltage permet set , medium voltage electrical distribution m.v.e, electrical novice , Ecostruxure power monitor expert power monitor project deployment -explanation diagram: note technical (Ups stream) , yes (USC %) ,=yes HV (transformer rating)=yes ,(power factor coincidence duty factor fore seable expense),(yes load rating). (Conductor charabke ,busbars,length, width, thickness,cables, type insulation, single core, length,cross section, environment,ambient temperature, installation method,number of,) Yes,,(ISc at transformer terminal)yes ,,ISC LV switchboard out goes)yes : (ISC switch board outage ,yes head of final switchboard yes),ISC end final), (breaking capacity,) yes(SST and install trip sitting yes) ,(breaking capacity yes , St and strip ,(breaking capacity St ms, final . -explanation: calculation impedance of power source the up streav network the power supply transformers as well as of the electrical lines Problem consider a 20kv network that supplies a HV / LV substation via 2 m overhead line and MVA generator that supplies in parallel the busbare of the same substation two 1000kva parallel connected transformers euply the LV,busbar which in turn supply 29out gears to 20 motor including the one supplying motor .all motor are rate 50kw all connections cable are identical and all motor are running when the fault occurs the isc3a d up value must be calculated at the variouse fault location indicated in the network diagram. -point A on the HV busbars with a negligible impedance. -point B on the LV busbar,at a distance of meter from the transformer. -Point c on the busbar of an LV su distribution board . -point D at the terminal of motor Mthen the reverse current of the motor must be calculated at C and B . up then D ,A

Upstream network U1=20Kv, SCC=500MVA , overhead line,3 cable ,50mm , copper length=20km, 2). Generator, 1MVA ,xsub =15%,t 3) transformer , 1000KVA secondary winding 237/410 ,USC=5% -mIn LV switchboard 3 bars ,400mm sqr /ph copper , length=10m, -cable @,3 single core cable 400mm aluminium spaced laid flat length =80m, -Lv sub -distri utilisation board neglected the length of the busbar, -cable ,3 single core cable 35 mm sqr copper 3,phase length=30m , -motore

Drawing 1.

Reactance x and resistance are calculated with respective voltage in the installation relative impedance -solution :

Section. |Calculation. |. Result x,R

20KV 1.upstream network|Zup=(29×10 exp3)exp2×10 exp 6.(1) Xup=9,97 zup (2) . | X(ohm) (R(ohm) Rup=0,2zup env 0,2 xup X=0,78 ohm R=0,15 ohm

2.over head line |XCo=0,4×2 (7) |RCo=0.018×2000÷50 X=o.8. R=0,15ohm

3.generator | XG=15÷100×(20×10exp)÷100.

-RG=0,1XG

20KV fault A. X(m.ohm) R(m ohm)

4.transformer | Zt=1/2×5/100×410 exp2/19 exp Zt on LV side | XT ~~ZT. Rt~~ 9,2

410v

5.circuit break | . Xcb =0,15 ,15 ,,0,15

6.busbars one busbars | xB=0,15×10 exp -3 ×10 X=4,2, and R°0,84

RB=0,023×10÷400.. One 400mm .sqr bar X=1,5 m ohm R=0,5

Fault B 7.circuit breaker | xcb=0,15 R=0,15

8.cable.1 One 409 mm cable Per phase |xc1=0,15×10 exp -3×80 | Rc2 = 9,923×30÷35....,,

Fault c 9.circuit break ,xcb=0,15.....

Fault D 11motor 50kw |xm=25÷10×410 exp2/5010.9×0,8)×10 exp ,3 RM=0,2 xm

Impedance calculation : fault at A(HV busbars is to the generation XA=0,78+0,8~~1,58 ohm RA=0,15+0,72~~,0,80, ZA=√RA.RA+XA XA~~1,89 ohm IA =20×10 exp 3 ÷√3×1,806~~,415 Peak asymmetrical ipA, RA÷XA=0,55,,K=1,2 IPA=1,2×√2×6,415=10,887A.

Fault at B LV base (1,2,3)+(4,5,6)×R,,97 motor . (410÷20,000) Exp 2=9,42.10.exp -3 XB=[(XA.0.42)+4,2+0,15+15]×10exp -3 XB=6,51 m.ohm and RB=[(RA.0,42)+(0.84+0,57]× 10.exp -3 RB=1,77 m.ohm

- fault D motor (1,2,3)+(4,5,6)+(7,8)+ XD=(XC+015+2,7)×10 exp -3=21,52m RD=(RC+19,2)×10 exp -3=28.2 m.ohm RD=(RC+19.2)×10 exp -3 = ZD=√+RD.Rd)+(Xd.xd) =35,5m ohm I'd=410÷√3×35,5× 10 .exp -3 ~ 6,700A RD÷XD=1,31 ,, K~ 1,04 104×√2×6,700~~9,9000A XM=(605+2,7)×10.exp-3~~ 140 ohm ,ZM = 624 m . IM=410÷√3×624 ×10 exp -3 ~,379A 20 motor ,IMC =7,589 A

-ZB=√(RB.RB)+(XB.X.B=6.75m ohm IB=410/√3×6.75×10 .exp-3=35,070A. RB/XB=0,27 XC=(XB+0,15+12)×10 exp -3=34,7mohm RMD=(140/19+19,3)×10 exp -3~26,m ZMD=43.8m.ohm IMD=√410/√3×438×10.exp 3=5400A. 6,700+5,400=12,100A en and iPad ~ ,18,450A.

Symmetrical, method 3phase network is unbalanced, magnetic cyclical impedance no longer , voltage -positive sequence , negative sequence. I3,I2,I1 ,we vector geometric construction. Labell

-Fault estimated, 7,440×410/20×10 exp 3=152,5A Rough calculation.D Sum x = 4,2+1,5+12=17,7 mohm ,=xD Sum .R=7,2+19,3=26,5m ohm . Z'D=√(R'D.RD)+(x'd.xd) The peak iPad √2×7,430~10,500A.

Peak asymmetrical 4.8 time their rated current of 98A: 10,500+(4.8×98×√2×20)=23,800A. -G=e. exp j.2π/3=1/2+j.√3/2.betwen ,I1,I2,I4,.. I2=a.a.I1+aI1+I1 I1=I1+a.I1(2)+I1(0) I2=a.a.I1.(1)+a.I1(2)+(I1) .. calculation IEC , 60909>550kv., UN./√3fault

Type.of short circuit|

General situation ||fault occure -3phase .I|||ik3=x.un/√3.|z1) Zk°√Rk.k+xk.xk. |. I''k3=C.un/√3|z1. -Ze.=©©|Ik"=c.un/|Z1+Z2|| Ik"=c.un√3. 2|Z1|

Phase to earth Zsc phase o |Ikez=CUn√3|Z1|÷z1.z2+z2.zo+z1.z2.

- Ik2el2=Cub|Zo-aZ(1)÷Z1.Z2+Z2.Ze+Z1.Zo. Ik2EL2=C in |zo÷z1|-a ÷Z(1)+2Zo -_____ UnQ=20kv IkQ=10kA. T(St. Cable In.,4m, in =400v, Sr=400KVA Ur THv=20kv. Urkv=4% Pkrt=4,6kw, R(o)T/Et= Problem network supplies transformation, Ik" peak short circuit,I=4m , 3×185mm,sqr Al ZL=(0,208+Jo,o68) ohm .km R(o)L=4.23, X(o)L=1,2.

Solutions fault at F1, impedance of supply network (LV.) ZQt=CQ.UnQ÷√3.I".kQ×(ur.TLC÷urtHv)exp 2=1.1×20÷√3×10×(0,41÷20)exp 2= 0,534.

Problem power station unity Stag=250 MVA,,,UrG=21kv ,RG=0,0025 ohm X"d=17%, XD sat

=200%, cos alpha , ,art ,= 250MVA,, UrTHV÷Ukr=240Kv÷21kv,= ukr =15%,

Impedance generator , X"d=x"d÷100×U.U.r.G÷srG=17÷100×21×21÷250=0,2999ohm ZG=RG+jx'd=0,0025+j0,2999 |ZG|=0,2999 ohm Srg> 100MVA, RGf =0,005x"d,ZGf=0,0015+j0,2999 KS=UnQ.UnQ÷UrG.UrG ×Ur.Ur×tLv÷ur×thv×Cmax÷2+|x"d-xt|sin alpha ZS=ks×(t.r×tr.ZG+Zthv)= 0,913(240÷21)exp 2×(0,0025+j0,2999+(0,479+j34,555) ZS=0,75+j67,313 Zsf=2,226+j67,313 I'm"s=CUnQ÷√3Zs=1,1×220÷√3(0,73+j67,313=0,023-j2,07s, |Is|=2,08KA Solutions. Tree phase fault at F1. -impedan e of transformer ZTHV=Ukr÷100×urTHV÷srt=15÷100×240×240÷250=34,56 RTHV=PkrT×Ur.Ur×thv÷srt=15÷100×240×240÷250=0,479 XThv=√z.zthv-rthv.rthv=34,557 ohm. ZThv=(0,479+j34,557)

-3.section 4 . Purpose : Power explain hand book -basic network analysis /and advance field college. University explanation career -instrumentation , -DC motor and generator , -transformers , -three -phase induction motor. -single phase motors -synchronouse machine. -generation of electric power. -Ovehead transmission lines on under ground cables . -stationery batteries. -electric energy economic method , -ligthing design.

Label drawing resistor groups

- explanation : serie -parallele DC circuit to be analysed:. Combine all Serie Req=R1+R2+R3+...+En DE=RB+R14=200+40=240 ohm ,Req, GG= R7+R8=200+400=600 .ohm , Req ,=, R10+R11==400R.=//. Req=R1//R2=R1.R2/R1+R2) G.G=R5//R6=(1009×1500)/1000+500)=600 ohm. Sum VD, E=VAB+VBC+VDE+VEF 460=60+100+50+120+130v -computw the current ,V1=VAB+I1.R1, VBC =V2=V3, VCF=E-(VAB+VBc)=460-(60+100)=30 IA=IT[RB/(RA+RB), IB=IT[RA/RA+RB, .. I5+I6=0,5/2=0,55=I5=0,25×(1500/2500) ___---------- Explain draw Motor source -Id = Q c |VC|=1220 VAR (120v)=12 (0+j10,2).@ motor)=cos exp -1)×0,7=45.6 IM= 114.29 /_45.6 °=(10-j.10,2) IT=IM+IC=(10-j10.2)+(0+j10,2)=10/*0° 100 percent factor capacitor installed in switched bank to provide a range of of correction (S=P/cos)Teta=1200/0,7=1714. S/|E|=(1714VA)(120V)=1429. |.I| ×cos @=(1429A)(0,7)=10A. QL=|E/I|.√1-cos.xos /,* reactive power factor , QL=(120)×(14,29).√1-(0,7)×(0,7)=1714×√o,51=1224 VAR -Xc=VC.vc/ Qc=(120)×(120/1224=11,76 C=1/wxc=1/(377)+1176=225,5

Purpose Explanation :Analysis of offset wave Calculation average V avg= Vdx=T T= period ,V avg =Vdx=[(12×1)-(8×1)]=2v Vrm,v = √area[VT.t]/ T=√(12×1) exo+(8×1) exp 2÷2=√104=10.2

-superposition theorem effect 20vdc, VC reached it final ,(steady-state) value I=9,VR=I×R=0V,VC=20v ,effect of AC voltage (10.sin 377t) circuit ,XC =1/CW =1/(377)(660×10 exp 6)=4 ohm ,Z=3-j4=5/*-53° I=E÷Z=(0,707)(10)/0°/5, /-53°=1,414/*+53A I'm=1,414/0,707=2A, I=0+2sub(377+53°) VR=I/R=(1,414/_53°)(3/_0°)=4,242/*53° VR=0+6sin(377+53°) VC=5.656/0,707=8. /-*37°, VC=5,656/0,07=8v VC=20+8 sin (377t-37°) V=√vdc .vdc +(vm1.vm1+....VM.vm)÷2 VM=|T|=√0.0+2.2=1441, |car|=√0.0+6.6/2=2,24 P=I.I×R=(1.414) exp 2×(3)=6v

-Explanation : VR, 20 v , 10 sin 377t, c=660 W=2.π .f=(2)(3,1416)(60)=377.rad/s,,xL=1/(376)+26,5)×10 exp - 6 Z=R+j(xL-xc)=R+jxEQ,, XEq=xL-xc Z=√R.R+XEq /_ tan exp -1(XEq/R=|z|/-0,,Z=100+j(188,5-109)= √(100)(100)+(85,5(85,5)/100=133,5/_41,5° -E= VR+jvl-jv =VR+JVC,,vx=vl-vc

Label drawing

-Explanation series parallel,RLC Serie parall Serie El,and RC ,,Z1,Z2 -I1=E/Zeq=100/*0° ÷1290/224°=0,0775/-22,° Current rule I2=I1.Z3(Z2+Z3)=(0,0775/*-22,4°) (100/$-36,9°)÷[500+j1200)+(800-j600)]=0,051/*-841°A,I3=I1Z2(Z2+Z3)= (0,00775/*-22,4°) (1300÷67,4°)÷(500+j1200)(800-j600)]=0,0709/_202°

-Explanation.source =E=100v/_0°, load 1 ,P=200w,Qc=500v,, parallel load 2,pp=500w,QL=1200v,, Triangle Qxc=QL-QC=1200-500=700 S=√PT.PT+Qx.Qx=√700×700+700×700= 989,8

- explained maximum power transfer in AC circuit Label series , source E 9v/_0°< pallele Z1=10/*53°,Z2=8/$90°,ZL Statement of the maximum power apply thevenin circuit ZThv=Z1.Z2(Z1+Z2)=(10/*-53°)(8/*90°÷(8/90°)÷[6-j8)(j8)=13,3/-37°ohn ZThv=10,6+j8 ohm R=10,6 ohm, xl=8 ohm ,ZL , 133/*-37°=10,6 ohm ,j8 ohm ,RL=106 ohm , ,XC=-8 ohm ETH=EZ2(Z1+Z2)=(90/_0°)(8/_90°÷[(6-j8)+j8]=12/_90°v Pmax=|ETh.ETh| ÷4RL Pmax =(12)(12)π(4)(10,6)=3,4w

Explain of a balanced wyE ,wyE system VAn=120/$0°,V, Vbn=120/_-120° Vcn=120/120°,ZA==zb=zc=12/$0° IA=Van/ZA=120/0°,÷/_0°=10/*0° IB=vbn÷zb=120/*-120°÷12/0° IN=10/_0°+10/-120°+10/120°=0A -analyse system balance , VAC =200/_0°, VBa,,200/_120°, VBc = 200/_120°, Zac=ZBA=zCB=4/_0°

Drawing diagram start start load source .. Load current. IAC= Vac÷zac=200/_0°4/_0°=50/_0°A IBA=VBA/zBA=200/_120°/4/_0° 50/*120°A÷4/0°=59/-120°A -solve line current 50/120°=25+j43,3, Icb=50/-120° =25-j43,3)loS ,IA=Iac-I a =(50+Jo)-(25+j43,3)=86,6/43,3)-(-25-j43,3)=86,6/-30°,A,IB=IB IC=(-25+j43,3)-(-25-j433)=86,6/*-90° -Ic=Icb-Iac=(-25-j43,3)-(50+Jo)=86,6/$-150° ..

3..Drawing label balance, delta,

3.1Explanation: instrument correct transformer line.

3.2 Explain : instrument connect transformer line A,b,c to 3 p AC ,, RF=10k,R1=20k, Ref=10k,

. drawing labell

2×11×60=1320 ,u. Sec RC=1/2×P1×RaC 11×60=660hz C=2,411×E-8farad, --_____ I=P(V×pf)=20,000/240×80)=104A, 1000,000/2400=41A, 50:5A rating, Select potential ,2400V, step down ,120V, 20:1,connected 2400,

Drawing

Select current : 1500,00/1,73×1200)=72 -line -to-line ,12000V, 12000/120=100:1

Vare enter selected varent , I line =300000(1,73×8300)=208A,, 25:5_-A 8300/1,73=4790, 4799/120=39,9A -scale meter : Teta ,cos exp-1,,0,8=36.9° Reactive power=300.00×sin36,9°=300,000×0,6=180,000var

3.3 Explanation Metering internal wiring

Connecting a tree phase watthour ,meter with a demand register to power line , Drawing.

Union College engineering emeritus

34Explanation DC motor and generator : a=4, four pole ,lap wound machine constant k=N.p/aπ, N = 780/2 ,=39, P=4 ,poles ,a=4, (390)(4)/(4π)=124,14,,k=124,14 -calculate the induced voltage function. EA=, =k×flux×w×m×s, Finding , 2/0,0397=35,2 rad / v.s Calibration > EA/w.m=k.flux , (124,14)(0,32×10- exp 3 wb)=0,0397

3.4.1.explanation :calculate the speed calibration of the the voltmeter: EA/wm ,, I/0,0397=25,2 rad / ,IV ,speed of 25,2 rad /s ,2 π rad , calibration , 25,2/2π,,um /s ,I-V ,,,(r/s)(60/SM) 240 tr/Min Draw labell Field load Terminal voltage ,V t=Ra-ILRa=260,8-(40A)(0,4) ohm=2449

-armature induced voltage EA = 280v , at 1100r/Min , ea =(280)(950/1100)=242V VT=EA=Is(Ra+Rs)=242V-(630)(0,02+0,0045 ohm =224,7

- explain moment inertia j T= k2wo, k2=T/wo {(2.40nm)/(183rad/s)=0,013 Tacc=j/DW/DT, k2Wo=jdw/St. Integral x1=84 ,X2=0 dr= (j/k2). Integral , x 1=42 , X2=183 (I/w) dw [t] ,84 to 0 = (j / 0,0013) (ln w) | 42, to 182 -j=(84)(0,013)/(ln42-ln183)=0,742 kg -explanation calculation the time form dynamic breaking electromagnetic torque=K1.Ia, IA=EA/(Ra+Rbr).k2w+k1.k1 ×w/5.29 Or,St=(5,29jdw)/(5,29k2w+k1.k2) t=4,355

Drawing label

-three phase scr drive for DC , scr calculation average values, equation ,Vag= (3×√3/2π)×V×cos s V=(440/√3)√2=359,3V S=40°,s Bag=0,827×cos,s=(0,827)(359.3)cos alph90°=227,6 S=45°, bag =(0,827)(359,3)(cos45°)=210,1 -conversion = 1100r/Min (πrd).m 60s=115,2 Const torque ,

- explanat ion Calculate torque ,T=K×Ia, (10hp)(746w/HP)/1208=35,9A T=(33,00/0,738Lb,ft=64 7 n K=I/Is=64,7N, m/35,9A)= ,1,8n.m/A -ea=kwm, EA =(1,8V are)(115,2rad) =208v,,EA=VT=Ia.Ra IA=(2276,6-208)/0,42=46, .T=k.Ia, 40°, T=(1,8Nm/A)(46,7a) 84,1Nm.,, 45° Fring an ,T=(1.8Nm/A)(5.0A)=9.N.m

Analysis of a transformer connected to loan. 3.5-explanation calculation moment inertia , T= Armature=, poles (0,75)×(12,4Ia)=9,3 armature field current IL=(0,048)(41,7A)=2,0A R shunt field , RF = V1/If=240/2.0A=120 IA=IL+If=41,7A+2.0A=43,7A IA.Ra=(0,0061)/(240v)=14,64V, Is =43,7 RA=14,64v/437A=0,335

Full load IL motor ,IL = 5000w/240V=208 EA=Vf-Ra Is=240-(1.100ohm)(1.8A)=238V. -pro(loss)=EA.ia=(238)(1,8)=428,42 IL+If,, VT=240,,V=ea-Ra(IL+If) -starting IA=IL-If=20A-5,2A=14,8A Induced ,EA=V.t-Ia(Ra+Rat)=240 -(14,8A)(0,330 ohm+6,57 ohm)=137,9 V, -test stat restricted RST=(vt-ea)/Ia-Ra= (240v-137,9v)/34.8A-0,330ohm=2,60 ohm -ea= VT -Ia(Ra+RST)=240v-(14,8A)<0,330), 2,60=196,6 Rst2=(vt-ea)/Ia-Ra=240V-(14,8A)(0,330+0,917)=221,5 R1=Rst2=09,97.;; R2=Rst-rst2=260-0,917 =16,83 ohm ,, R3=Rst-Rsti =6,57 ohm - 2,60 = 3.9 _explain , dynamic breaking for separe excited motor T=33,00/P/2πn.. P= rating , n= speed ,T=(33,000).(7,5hp) (2π×1750 tr/Min)= 22.Lb 1N.m /0,738Lb.ft=30,5 N.m

Ia-Ia×.Ia .×Ra....Vt-2v Calculation rotational losses rate speed ,.calculate initial break 2×3,5 N.m-2,40N, m=58,6 Torq=K1.Ia,,K 1=, I a = 240 m/.1,85=1,3

...

3.6Explain:calculate a procedure,. -computw the number of primary and secondary turn , -N1=V1/V turn =2500/2,5V turn , =1000turn , similarly,n=v2,250/2,5 , turn , a=N1/N2=, 1000/100=,10:1 I1=(VA)/V1=25000VA/25000,V=10A,,I2=(VA)/V3,=25,00Va. /250 =100A,, I/a=I'm/I3,=10A/100A=1:10

Drawing labell: I1,,I2 ,zth =5k , Z1,, N 2,, ZL=8ohm,, Thevenin , impedance. Z1..5000ohm,, thevenin ZL 8.ohm ,a= √Z1/ZL=√5000 ÷8=25 ,,25:1. -a2= V1/V2=2000÷1000=2÷1, a 3 =V1÷V3, 2000÷500 V =4÷1. -primairy ,I1,,, I2=V2/Z2.. I3=V3/Z3,,, I 2= 1000V÷500=20A,,, I 3= 5000V/50=10A.

-labell transfo , primary :V=20000,Z1,N1,, N2, N3, v2 = 1000, load Z 2=, 50 ohm ,,Z 3= 50 ohm

N1.I1=N2.I2+N3.I3,,solv. I1=(N2/N1)I2+(N3/N1)I2, N2/N1=1/a2,, N3/N1=I/a3. I1=U2.Ia2+I3.Ia3=(20A(1/2)+(10A)(1/4)=12,5A

KVA = V1.I/1000=(2000V)(12,5A)/1000 =25kva , KVA ,= V2.I2/1000 =(1000V)(20A)/1000=20KVA, KVA3=V3.I3/100=(500V)(10A) .apparent ,25KVA =(20+5),KVA -impedan e wind Z1=a2.a2Z3||a3.a3.a3Z3, Z 2=(2)(2)(50)|| (4.4)(50 ohm)=200||800=160 ohm Z1 found in step Z1= V1/I1=2000V/12,5=160

-power requirements: P1=P2+P3+.... Secondly , P1=5+2+10-3=20w P1=V1.V1÷Z1,, V1=√P1×Z1=√20×2000.=200v V2=√5×6=5,48, V3=√2×2×8=4V V4=√10×16=12,7v, V5=√3×500=38,7ohm a=V1/V2=200/5.48=36,51 a3=V1/V3=200/4=50:1, a = V1..

3.4 Explain, circuit , Z 1= V1 200 , circuit ,Z2=6 ohm ,p= 5 w,Z2= 8 ohm ,z 4 =, 10,Z5= 500,, -I 1 ,v 1= 4800v,S1=100,f=60hz, -I 2 ,n 2 , 609 v load ,S2=,50kva N3,480v, load ,S3=50kva

a2=V1/v2=N1/n2=4800/600=8:1 N2=N1/a2=800/8=100tirb a3=V1/V3=N1/N3=4800/480=10:1 N3=N1/a3=800/10=80 turn I1=(VA)1,/V=1000000/4800=20,83 I2=(Va)/v2=80000/500=83,8 I3=(vA)/V3=50000/480=104,2

Performance and analysis of transformer with a logging Diagram phasor R1=0,3 ohm ,x1=15, I 2,N1, X2=0,015 I1, RC,XM , v2,E2, load -E1,I flux ,lag ,E 1,90°,power factor,R1/a.a,,x1/a a, Req=R1/a.a+R2. Xeq2=x1/a.a+X2.. Zeq=Req+(jxEQ. jxeq) a=V1/v2= 2400/240=10:1 Xeq2=(R1.|a.a+R2)+j(x1|a.a+X2) =(0,3/100-0,003)+J(1,5/100+0,00)=0,03059/*78.69°*> |*I2|=(vA)/V2=100.00/240=416,67 I2=416,67/*-36,87° V1/a=V2+I2.Zeq2= (416,67/_-36,87°)(0,03059/_78,69=249,69/_1,952° |V1|=a|V1|a|=10×249.65=2496,5

3.7-explanation loss calculation. 10kva , transformer, 40w iron low ,160-w copper loss at full load efficient 5kva,80% Pcu,=I1.I1.R1+I2.I2.R2. Eff= pour/pin = pour/(pour+losses =Pour/(pour+pin+pcu =(Va load)(Of)[Va load) Of+of+pxu ,(Va load) n rating Efficient=5000×o,8)(500×0,8+40+16) (5000/10000 ,exp 2)=0,98 -level max efficient Pcu (KVA/ kV rating, Efficiency= p out (pour+pi+pcu) = 5000(5000+40+40)94 All day efficient , 24h trans. Loss is a total ,P.t (180×24)/1000=4,32kw, W cubtotal , (1×1×620×8+0,5×0,5×620×5+0,25×0,25×620×7)/1000=6,006kw,,20h -wloss=50×8+50×1/2.5+50×@/4×7=612,5kw. ----------_-------- Explain draw Generator ,I1p connection I1 and I2 ,13kv, primary, secondary 138kv , ,load rated =50Mww,,delta start ,x1,n1

a=N1/N2=13.000/79,677=0,163,.I1s=a.I1.p√3=(0,163÷2221/√3=209... Load { total KVA /√3=80kva/√3=46,2Kv -46,2kva/40kva×100%=115,5% =√3×40=69,3 =69,9kva/120kva,x100=57,7 ----------+ Delta Delta connection,80 kV /√3=26,67kva,load ,=KVA, = 46,2kva/26,67kva×100=173,2%

----------_ 3.6 Explain phase induction motor , I1,r,1x 1, RC,XM ,E 1, v,1, i2,X2, E2,R2/s. equivenlent diagram Solutions. 1.fulk load shaft power = 15×746=,11,190 w mechanical power development (pm)=,shaft power friction ,I1,R1,X1, RC ,XM, I'2-I2/a,x'2=a.a,X2,R',R'2/s(1-s), R'2/s=a.aR2/s Pm=11,190+820=12,010w. 2synchrouna speed (Na)=f/p, Ns=60/2=30×60=1800 r/Min Slip(s)=(ns-n)/Na S=(1809-1710)÷1800=0,05 Air gap power (page)=Pm÷(1-s) Pafg=12,010/(1-0,05)=12,642. -rotor copper loss (pcu.pcu)=SPG Pcu 2=0,05×12642,1=632,1 -no load test f=60hz,V=229,9,v =6,36A,P=5/2w, -locked rotor test F1=15hz,v=24,I=24,06,P=721w, -locked rotor test at f1=60hz, I=110A,P=27,225w Aveg,wind resis stator terminal=0,42ogm No load test |Znl|=VNl÷√3.INL=229,9/(1,73×6,36)=20,87 ohm Rnl=Pnl/3nl=512/(3×6,35 exp 2)=4,22 ohm Znl=√|znl| exp 2-Rc .exp #=√2a,86. Exp #-4.22 exp 2=20,44 ohm Lock rotor test , Zin=V÷√3.I=24÷(1.732×24.06)=0,576 ohm -R1+R'2=P÷3.I.I=721÷(3×24.06.exp 2)=0,415 ohm X1=X'2=√zin.exp 2-(R1+R'2)exp 2 =√0,576 exp 2-0,415 .exp 2=0,404 ohm To determine leakage ,60hz, XL=(60÷15)(x'1+x'2)=60/15×o,403=1,616ohm X1=0.3xl=0.3x1.616=0.485 ohm X2=0.7xL=0.7xL=0.7×1.616=1.319ohm . magnetic react XM=Xnl-x1=20.44-0,485=19,955 ohm , PG=pnl-3.i.R1=27,225-3×110 exp × o,21= ,=19,602 w

3.7 Explanation: -3÷188,5×(241,2)(241,2)×0,2÷1=185,2Nm -R2'/S=0,2/0,0333=6,01ohm, Z1=(0,25+j0,15)+(j30)(6,01+j0,5/6,01+j30,5)=0,25+j0,5+5,597+j1,596=6,2123/_19,7° -Ifl=265,6/6,2123/*19,7=42,754/*-19,7°A It's/IfL=245,9÷42,754=5,75, of =cos (19,7°)=0,94 log -T=3÷188,5×+(261,3)(261,3)÷(0,49+0,5).exp ×6,01=163 , NM Pag=Two.sin =163,11×188,5=30,746,2 -Rotor copper loss: P2=sPag=0,033×30,746,2=1033,9w P mech =(1-0,0333(×30.746,2=28,7223 Pour=Pmec-p rot=29,7223-1700=28,0223 Pin=3×.V1.×I1×cos flux.

=3×265,6×42,754×0,94=32,0024 Eff rotor = 28,0223÷32.022,4×100=87,5% -effinte =(1-s)=1-0,033=0,967=96,7% STmax=0,2/((0,24)(0,24)+(0,49+0,5)exp2)exp 1/2=0,1963 Tmax=3÷2×188,5.[(261,3)exp 2÷0,24+(0,24)(0,24)+(0,49+0,5)exp .2)exp 1/2=431,68N.m -Tmax ÷TpL=431,68/163,11=2,65.

STmax=1-(R2/(Xm+X2)=1-(0,58÷(2,6+0,271)=0,98 Breaking

Labels Drawing

WS=2πf/P=(2π×60)÷2=188,5 rad/s TL=Pg÷ws=19,602÷188,5=104N.m Resistance reactance. R'2=(R1+R'2)-R1=0,415-0,204 .ohm R=P÷3×I×I=27,225÷(3×110×110)=0,75 ohm X=√z.z-R.R=√1.207×1.207-0,75×075=0,95 .ohm X'2=X-X1=0,95-0,485=0,465 ohm -Rotor at start RfL=R-R1=0,75-0,21=0,54 ohm

-IEEE..test for empire Reactance rotation|sQuire cage design|w X1/XL : a 0,5: B;0,4;c 0,3;D 0,5 X2/XL

-Performan e characteristics Tech=1/w×3.V1.V1/√R1+(R'2÷S)]exp 2+(X1+X'2)=R'2÷S -AT low value of slip Timex ~ I/was 3V1.v1/R'2×s At .value of slip . Timex ~I/Was.3×V1×V1/(X1+X2)exp 2=R'2/S

- Tmax = 1/2ws×3×v1v1/R1+√R1.R1+(X1+X'2) -stator core rotor friction and wind , Loss ,Pag ,pin Elec ,pmec ,windage loss ,P out mec,stator resi loss (3.I1.I1.R1) -3phase I.a.V1=460×√3=265,6 V ,start ,S=1,the input impedance, Z1=0,2+ -j30(0,2+j0,5)/0,2+-j30,5=1.08/_66° The starting current It's=265,6÷1,08/*66°=245,9/*-66°A. Wayne=1800÷60×2π=188,5rad/s Vth=265,6×(-j30,0)÷0,25+j30,5~261,3V ZThv=-j30(0,25+j0,5/0,25+j30=0,55/_63,9° =0,24j+j0,49 Rath=0,24ohn ,XTh=0,49 ~x . It's=Pag÷wsyn=I2.×2R'2/S÷w.a =3÷188,5×(261,3) exp 2÷(0,24+0,2)exp 2(0,49+0,5)× 0,2÷1=

3.9-explanation: . 1.select base value: VA base =150MVA, vbase =13,8kv,,fbase = 60hz,value base, 2.calculate RMS stator phase current base ,Is base , Is (base) = (MVA base ×1009)(√3×Kv base)=(150)(1000)/√3(13,8=6276A, 3.)calculate peak stator phase current base ,U base , I (base) = √2×Is(base)=√2)×(6276)=8875A. -4) calculat statore base impedance Z, ,base ,ZS (base)=KV..base / MVA base =13.8)exp 2/150=1,270 ohm 5) calculate base inductance ,La (base , La (base) =ZS=(base)/Abase=1270/377=3,37×10 exp -3 6)calculate field base impedance Zfd(base) Zfd ,base = (Lad/LAFD ,base =(0,0056÷0,0138)×8876=3602A. 7)calculate field base impedance Zfd (base) Zfd(base)=MVa base ×10 .exp 6÷id(base ,=150×10 .exp 6 =11,56 8)calculate field base inductance Lfd (base) Lfd(base) = Zfd (base /w base = 11,56/377=30,66×10.exp-3 H 9) calculate field base voltage ,EF d base 10).calculate direct axes armortiaeur base current current is ks (base) lad / laks is base , =(0,0056/0,0054)+8876)=9204 11)calculate direct axis armortiaseur base inductance. lkd(base)=Zkd(base)/wbase=1,77/377=4,70×10 exp -3 H I Zk , direct axis armortiaseur base current -12,). 1kd (base)(load/laks)(base)=(0,0056/0,0053)(8875)=9204A. 13) calculate quadrature - axis armortiaseur base inductance ,L,kq (base) Lkq(base)=Zkq(base)/wb=1,77÷377=4,70×10. Exp -3 -350×10 exp 3 W-(399,8hp)(746w/HP)-44,186w=7563 -calculatiin of efficiency because =+399,8hp)(746w/HP)(100%)/[399,8hp)(746whp)+44,186wt, 7563w]=85,2% -calculate counter ,EMF (Tuvr)-(resist volt drop) -(reactive voltage ,240 */0° (1580/*-38.1°A)(0,0177 ohm)-j(1580/_-38/A)(0,046 ohm) =240-22.0+j17,3-44,9-449-449-j57,2=173,1j-j39,9=177,7/_13°

-14 calculate quadrature axis armortiaseur base impedance L.kq(base) Lkq (base) = Zk(base)/wbase =2246/377=5,96×10 exp -3 16.calxulate base mutual inductance between armortiaseur and field Lfd base ,lfk base = (ifs(base) / ikd (base) Lfd (base)= (3602/9203)+30,66×10 exp -3)=12×10 exp -3H 17. Calculate base flux linkage flux ,base . Flux (base) = La (base) is (base) = (3,37×10 exp - 3) ×8875=29,9wb

-calculate base rotation speed in r/term , Base speed is 120 f base ,IP = (120)+60/2)=3600r/Min -calculate base torque ,t base , T base = (7,04 MVA base × 10) minimum base , = (7,04)(150)(10 exp 6) ÷ 3600=293 ,kLb ,ft (3972 kn.m)

Calculate per - unit base Quantitie for a 150-Mva ,13,7kv,60 Hz ,3 ph two pole synchronisation machine following constant axis mutual inductance between, Inductance between stator winding a and rotor ,L AFA = 0,0054H ,Q axis mutual inductance between rotor stator winding a and q axis armortiaseur,Lakq= 0,0963 H ,the per unit system and denote rotor -calculate procedure:

1. Determine the speed at breakdown torque synchronous in speed is calculated from the equation n,sync= 129 f/p , r/Min where ,f frequently,in Hz and ,P= number of poles this) synchronisation=120(60)(1800)×4 ,at the point where the torque in percent breakdown torque is 109,the speed in percent of synchronisation torque is 100,the speed %, of synchronisation speed is thus the rotor ,speed is not= 0,80 synch=0,80)×(1800)=14400trm -calculate the hors power at breakdown The general equation)+HP Min) /33,000f.t,lb=(torque in lb, ,n rot in r/Min)/52521 ; 16°z,,Lb , 13 in = ift -ho = (torque in o in) (n rot ,r/Min)÷1,008,403,2 HP=(torque in o .in)(n rot in r/ Min)×10 .exp -6 break down, HP = (10,50z in) (1440r/ Min) ÷10 exp 6=15,12÷10 exp -3, how = 1512 ..

- repulsion motor , 24 slot the armature , Slot ° (24)+2)=48 coil ZR=(3,5×10 exo -3 WB)(576 conductor)(3600r/Min)(2poles)/√2)+60hz, (2pharh)=85,5

-calculate the AC impedance of the rotor circuit. -inductuve is calculated XL=WL=2πfL. Frequency,L=inductance,XL=(2π)×(60)×(36×10.exp-3H)=13,5ohm Impedance of the rotor circuit is R+jxl=2,7+j13,6 ohm =13,9/_78.8°

-IK,R,JXL,VL,, Flux magnetic properties T=K.flux.il..kflux , T state /IL=2,3N m/3,6A=0,639wb IL=VL/Z=120V ÷ 13,9=8,63A -3.Calcul the AC starting torque T=k.flux.IL, T start , ..k.flux.il=(1,53wb)(8,63a)=132. 4) calcul counter efn EA=VL-IL.Z..IL..to , 85% first càlcul -j48.1=|20.7/_-240V, repeat IL,24°, EA = 120°/*0°-(3,6/*-24°)+13,9/$78,8°)=120-50,04/$54,8°=120-28,8-j40,9 =91,2-j40,2=99,95/$-24,2, -24° remain Pmec=EA.iL=(99,95)(3,6A)=359,8w -VL lag VL, of ° cos 24,2°=0,912 from information , Pmech = VL×IL×cos-coppwr loss = VL×IL×cos-IL×IL×R= (120v)(36A)(0,912)-

(3,6A)(3,6)(2,7)=383,97-3499=359 359.8w. VL=120/_0°. _____***&& Drawing label Phasor diagram motor universal : ea°99,95/-242°V, |IL.R| =972V. IL°3.6/-24,2°*** -------- Repulsion motor drawing diagram

3.9.Explanation, -J√3.V.V/XD. roduis ,is RF=√3.√Emax /XD= √3(10)×(1,85)÷1,78=1,8p.u V=I.××o×p×u, Local , o (-10×√3)÷1,78=0,-j 9,96 -3 calculate steady state. Jv2÷2(1xe-1÷XD)=J/2(I÷0,4-1×1,78)= J.o.96. RL=roduis =V2.V2(1÷Xe×1÷xd)=1÷2(1÷0,4+177)=1,53pu.

- 3.10 explanation: GENERATION REGULATION: -Ea=0,00219,power factor =0,975 ,zero -Calculate potier reactance,XP So=E+√3×Ia×xp , from zero power factor,.Eo= voltage at not load E,I,S. Terminal , voltage in RD= RE+DE,, DE=√3×Ia×xp XP= Is xp÷(VLL÷√3)=D.E÷VLL=DE÷RE=0,43Pu, EP=1,175Pu. -power output and power factor. Calculate the maximum output ,power for an excitation increase of 20% for a 13,8KV ,eye ,connected generator having a synchronous impedance of 38ohm phase it is connected to an infinite bus and delivery ,3900A ,at unity power factor , -1 drawing phasor diagram, subscription indicate initial conditions , voltage vs ,the line -to-neutral Angle and between the phase voltage and phase current.

2 .calculat voltage behind synchronous reactance E=(1X,)+1X)-V.V] exo 1/2 = [3900×3,8÷1000) exp 2 -(13,8÷√3)]exp 1/2=14,54 KV 3.calcul maximum power Pnax Pmax=3.E.V.I.X ,,sin§=1 for maximum Power ,20% higher excitation. Pmax = [(3)(1.2)(14,53)(13,8÷√3÷3,8=110MW - Calculate power factor, Flux =E.I÷Xs=14,53÷(3,9)(3,8)=0,97

-per unit Quadrature axis reactance calculate the synchronous and substrasient per unit reactance for the quadrature axis of the machine in the first , additional data ,for the machine are ,q-axia armortiaseur ,self inductance L,K,Kq=0,0107H, and the ,q-axia Lak = 6,3×10 exp -3 , -calculate ,Law From value obtained in the two previous, IQ=Lq/La(base)=0,0058÷(3,37×10 exp -3)=1,72 pu. -calculate .IQ L.q=Law+L1=1,72+0,12=1,84 Calculate ,Lkkq and Lakq. L.k.kq=L.k.q÷Lq(base)=0,0107÷(5,96×10 exo -3)=2,80 Pu , IA.kq÷(La.base)+ base) ÷Ikq(base) =(6,3×10 exp -3)÷(3,37×10.rxp-3)(8876÷8172)=2,72pu

4.

Calcul per unit value of q-q ,axis armortiaseur leakage inductance ,IkQ ,1kq=1k.kq-ILq=180-1.72=0,08Pu

5).calculate per unit transient inductance. Lq=Law.Lkq÷(Law+Lkq)+L1=(1,72)+0,08)÷(1,72+0,07)-0,12=0,195 Pu

- calculate if and ikd The quantity are ,ifd rfs ,Zsd (base)= 0,0072÷11,56=6,23×10 exp-4, and Ikd= rkd÷Zkd base ,= 0,028÷1,77=0,0158pu - calculate field open circuit time constant,T,ok T'd=Lffd÷Ifd=1,74÷(6,23×10 exo -4)=2793,Pu -calculate: substrasient open - circuit time constant, I" o/o=(I/Iko)(Lkd+Ifd.ladπIfdd)= (1÷0,00157)(0,19+(008)(6,66÷1,741)]=16.9Pu -Calcul per unit transient and subtransion short circuit time constant for the direct axis the direct axis armortiseur leakage,time constant , -calculate per unit transient short circuit time constant ,Ta T'd=(I/FD)[Lfd+Li.los÷+Le+Lad) [1÷6,23×10 exp -4)(0,08+(0,12)(1,66)/(0,012+166)]=308 -Calculate per unit substrasient short circuit time constant ,T" oO 1÷F.kd×[Ln+1÷(1/Lad)+(1/Lfd)+(1/L1)] =1÷0,00158×0,19+1÷(1÷1,66)+(1÷0,08)+(1÷0,12)
- 3.calcul per unit armortiaseur leakage time constant ,Tkd, Tkd=Kkd÷Ikd=0,19÷0,158=12.pu I/w(base)=1÷377, Y=T÷377

-phasor diagram synchronous generator 1.determine If the Va and V base value are equal to the machine rating ,Is base = (MVA)×1000)÷√3kv=(100)(1000)÷√3)(13,8)=4184 ,base voltage a ,13,8 kV ,per unit RMS , terminal voltage ,is Ei=1.0 Pu Per unit peak voltage Teta = U.O/$0°.P.u will be chosen ,phasor 2) local ,q- axis , EQ=|EQ|/§ machine internal power angle. EQ, ,,Eq° a+ j(r+ jxq), but ju = 1.0/$0° Pu,where, Teta = cos -1 , 0,8 = -36,9,,,EQ=1*/0°+1.0/*-36°×j1.84=2,38/_35° Pu power angle ,×=35°

- Calculation a frictional ,EQ=|EQ|/s. -ea=|a|cos§=(1,0)(0,819)=0,818pu ed=|a|.sin×=+1.0)(0,573)=0,574 .Pu and Jq=|j1|.cos(§-teta)=1×0×cos(35°+36,9°)=0,311 ,Pu JD=|j|.sub(×-0)=0,951.pu

-voltage ,E1, Q axis represents. E1=Xad,j+d=eq-xd.is+rid=0,819+(1.89)(0,951)=257pu

- explain, Generatie - capabilities curve : generator , supa ability curves , supplied the manufacture is used to determine the ability of generator to delivery real (Me) and reactive ,(MVar) power to a network determine the capability curve in per unit value of a generator - characteristic : 989 KVA ,of = 0,85 synchronous reactance ,XD = 1,77 Pu , maximum value of generator internal voltage ,Emax =1,75 p.u terminal voltage ,V= 1.9 Pu ,§= load angle and the system reactance external to generator ,is XE=0,4 .p.u -calculate stator limited portion stator ,limited is directly proportional ,full power output ,arc ofa circle medium ,Rs=1,9 p.u
- calcul field - limited,P=(3×V.Emax/XD) Sin§+j(√3.×C.E.max÷Xd.cos§-√3.V.÷XD)

Explanation:-Generation rating for installation:-generation rating in MVA = turbine rating in MW /power factor,generator for 600-MW=rating 600Mw /0,99=677MVA.-o

3.11 Explanation: calculate generator output ,P Po= √3×KV×IA×pf=(√3)(25)(28.000)(0,975)=1.182,125kw -calculate generator officiency Efficiency=power out put)÷+power output+total losses) =1.182,125÷(1.182,125+10.910=0,99 -calculate synchronisation coefficient at rated load for the following generator : 75.000kw , terminal voltage ,V=I×o×p×u, armature current, IA=I×p×u, Quadrature axes reactance ,X2=1,8 ×pu× Of=0,80 lagging , neglected the resistive components of armature

- calculated rated load angles § The angle §=tan .exp -1.[xq×cos$×Ia÷(Ia×xa×sin$+V)] Tan .exp-1[1.8)(0,80)(1.0)÷[(1.0)(1,89)(0,6)+1]=35° - calculate synchronising power coefficient,Pr Or=(rates kW)÷(rates load angle × 2π÷360)=(75)(1000)÷(2π÷360)=122,780 kW/rad.

-Generation efficiency: Determine the efficiency of generator having the same basic characteristics of the generator in the generator regulation additional data including armature full load current ,IA=28.000A ,core and short circuit losses a friction and windage ,loss ,500Kw ,from drive rotor input ,armature , resistance ,Ra=0,0011ohm phase excitation voltage a rates ,470C, excitation current for air gap line 3200A,and output voltage ,25 kV ,compute core loss from and the potier voltage So=1.175 ×p.u, loss 21000kw

-determine short circuit loss for 1.0 Pu line current, short circuit loss =4700kw -calculate stray current loss, stray current, loss =short - circuit

-determine short circuit loss for 1.0 Pu line current ,short circuit loss =4700kw -calculate stray current loss ,stray current ,loss =short - circuit ,loss , armature,loss =4700-862=3838Kw

- calcul power for excitation power for excitation=field voltage ×IfL =(470)(2,4)(3200)÷1000=3610Kw, IFL

-Determine e total losses : --friction and windage : 500kw Core loss. : 2,100kw Armature copper loss. : 862 kW Stray current loss. : 3,838kw Power for excitation. : 3,619kw Total losses : 10,910kw

-Explain: Generator grounding transformer and resistor. -determine the size of a transformer and resistor required to adequately provide a high resistance ground system for a Wye, delta start connected generated rated 1009MVA ,26KV ,60GZ,in addition generator capacitance= 1,27 ,if man transformer capacitance =0,12 if ,generator lead capacitance= 0,01uf and auxiliary transformer capacitance = 0,024uf

-calculate generator line -to -neutrak voltage ,VL- N=(26kv)÷√3=15kv -calculate total capacitance ,CT CT=to+1,27+0,12+0,01+0,024)if=1,424 uf .

- calculate total capacitve reactance ,Xct XcT= 1÷2πfcT=1÷(6,28)(60)+1,424×10 exp -6)=1864 ohm -select ,R= XcT to limit transient over voltage during a line *to* ground fault assume a 19,92÷0,480Kv Transformer the resistance reflected to the primary ,is .R'=N.N×R, R' is the requirements resistor ,solve ,R=R'B.N ,,, B= 19,92π0,480=41,5 R=1864÷41,5 exp 2=1,08 ohm

-calculate transformer secondary voltage ,Vs during a line - to - ground fault ,vs = Vs = 1500÷41,5=361V.

- calcul current Is , through grounded resistor ,Is° Vs÷R=351÷1,08=334,3A -calcul required continuous rating ,in KVA grounds transformer rating is KVA ,= I,V, = (334,3)(361)=120,7kva.
- sele
- explain:selected short time rated transformer from ANSI standards ,a50 -kva transformer may be used 9 Min , rating is adequate,

-calculate generator line -to -ground fault current ,If , if = V/XcT =15.000÷1864 =8.05 -Power -factor improvement. An industrial plant has a 500-hp induction motor load a 4000V, with an average power factor of 0,8 logging ,and a erage motor efficient of 90% ,A new synchronous motor rates at 3000hp is installed to replace on equivenlent load of induction motor the synchronous motor efficient determine the synchronous motor current and power factor for a system current if 80%od the original system and unity power factor

- calculate initial system rating KVA The rating is KVA=(HP /b)(0,745/of)=(500/0,8)/(0,746/0,8)=518KVA,,n efficiency
- calcul initial system current I o Io=0,8Ii°(0,7)(746)=597A -neq induction - motor ,I1 I1=0,746 hob/. √3.n.pf =(0,746)(200)/√3(3)(0,9)(0,8)=299A,
- cal synchronous - motor power factor ,- PFA = 3588/40/1=0,895 -calculate synchronous motor power factor PFA , PFS = 358,8/401,1=0,895 Related calcul verification synchronous rotor horse ,3000hob,,,ho's=3×V×I×n×pf/0,746= (√3)(4)(401,1)(0,895)/0,746=3000hp
-

me

- 3.14. explanation: design calculation: autotransformer starting;

Labell drawing:

Alpha= voltage tap = VLA ÷Vs ILA= alpha / LA = motor , ILL=alpha /ILA= aloha K1= Line current for = Alpha, I1+0,15In for (a) motor torque

-ZL= total input impedance ZL=motor impedance Rs=starter resistance ILR=motor current .

Motor locked rocked rotor resistance ILR=VLR÷ZL=alpha.VL÷ZL=IL |Z×IL| I=I×RL+jxl, I=VL÷IR=VL÷alpha×IL =(Z/alpha) Ohm -RiL=Rs+RL=√Z exp 2×IL- XL.exp 2 R.S = (RiL-RL) Of = cos (Teta) = RiL + ZIL

-multi step starrting : . drawing:

R'2/Smart/ -Rx1=Rmax -Rx2=S1.R2.Rx4=S1.Rx3 -Rx4=S1.Rx5 rx1=Rx1-Rx2= Rx.z=rx2-rx3 Rx3=-rx4..

-speed control operating supply, Tm1÷Tm2=S1÷S2÷4 Tf1÷Tf2=N1. Exp2/n2 .exp 2 =(1-s1) exp 2/ 1- S2) expb Impedance motor XL=WL, r+jxl, T= k ,flux,L,, T = k.flux -Po=√3×Kv×A×pf

-e valuation of annual O ,M cost Vs installed capitals cost

Cost component | unit A. | Unit B.

-Net unit heat rate .|10,55 MJ/kWh| ..-/- -unit availability. |10.00 but kWh| -/- -unit rating. | 95%| -/- -installed capit cost| 600Mn| -/-

- levelized average | 18.00 % | -/- -for annual fixed Charge (9450×10 ,exp)(118/100)=18709×10.exp ,6 Annual fixed charge Annual cost used

for compare

91,69×10 ,exp 10 ,exp 6

- cost penalty

-3.14. Explanation :Overhead transmission line and under ground cables : -calculate flux one conductor

-Inductive impedance © ©. ©

- transmission line geometry portion Diagram . -effect of mutual flux line.
- charge two conduct . ..Is , RK, K ,IR

Long lines Vs = VR+IRZe),expb+(VR-IR-Ze)e .expb along Is=+VR/Zc+IR)exp + (VR/ Ze - IR) ,exp ,e - alpha e Zc= √ Z/y- ,, propagation cost ,, Alpha = = √ Z.y , per kilometre .

- calculating sending voltage for (200 m transmission line receiving to - line voltage ,is 239 kV ,and the is 200 at power factor ,0,8 logging promote ,R=0,2 ohm , L = 2 MH , C = 0,01 if , f = 60 Hz Determine YL , and ZL , .TL = hw × CL × 1/km .1=jb×77(0,01)(19 exp -6)/ km×320km= j.1206 micros sub(micro second) ZL=RL/km×1+XL/km.×1=0,2 ohm/kn(329km)+377(2)(10 exp -3) ohm / km × 329 km =-6,4+j241,3ohm

-capacitance of two wire line : E=P×L/2

-Capacitance of two -wire line E=P×L÷2×π×€×r Vab=(resistivity ×length÷2×π×€) Ln(b÷a) E=(resistivity ×Length÷2×π÷€)[1÷r-1÷(D-r)].V/m r>a ,center -V1.r=(resistivity ×Kength÷2×π×€)ln[r(D-a)÷a(D-r)].C -D>a ,V÷2=(resistivity ×Length÷π×€)Ln(D÷a)×V -C'=q÷V,, Q= resistivity ×length ,, C=C'/Lor,C ,,π÷Ln(D÷a), f/m

-find capacitance to neutral for conductor transmission line ,if = D=8ft×(2,4m),a=0,25 in (0,0^{0}625) Length of line is @0m.(16km), frequency is 377 Rod -ZC=1÷w×c , substitute for ,X=0,0388 ,log (D÷a) obtain -XC=1÷(377)(0,0388)(@0)÷log (2,4÷0,00625)]=0,0026 M,

-phase quadrature components ,start motor , VL= 120°*/0°, phasorw locked rotor ,Is=8,4/*-145° A=8,13-j2,10A , similarly

In= 12,64/_-40,0° ,A = 9,69-j8,18 In phase = 8,13+9,69=17,82A Iquad ,= -j2,10-j8,13=-j10,23A I star= 17,82-j10,23A=20,55/_29° Pfact start = cos 29°,86=0,867 T,start = k.Im.sin.a =(0,18V,s/A)(0,4A)(12,05).sin 25 =8,46V

ZA=Za×bZ×Ca÷Zav-Zbc+Zc Zb=Zab.Zbc÷Zab+Zbc+Zca Zc=Zbc.Zco÷Zab+zbc+Zca

Zab=Zab+ZbZc+ZcZ2÷Zc Zbc=Zazb+Zb.Zc+ZcZc÷za Zca=Zazb+Zb.zc+Zc.iz÷zb

(Xa.zb+xb.xc+XC.xa)÷xc zbc=(xa.xb+xb.xc+XC.xa)÷xa XB.xc+XC.xa)÷xb Xa=Zab.xca÷xab+xbc+xca XC=xbcxca÷xab+xbc+xca

Labell Generator ,12,2 kV, x"=0,19pu,50.000kva

Motor 1: 30000KVA,X"=0,29per ,,4,2kv Motor 2: 20.000kva,X"=0,25. , 2,2 kV -tfo : Primary : 13,2kv,: 50MVA,,, Secondary: 4,2kv, 30MVA,, Tertairw :2,2kv,,20Mv

Label ,R'j0,68,,,L2=10,012; ,j0,002, equivalent,0,034 Correct motor reactance ,X" motor ,0,2 base ,30.000kva , 4,2kv, (0,20)(50,000/30000)(4,2/13,2)Exp 2=0,034Pa, X" load 2, 20000Kva , 2,2kv (0,25)(50,000/20.000)(2,2/13,2).exo 2=0,017 Calculation of complex power ,P+jQ Balanced 3 phase, .. 5.0/_-37°, line voltage ,is 69/_0°,per unit base of ,10000KVa and 72 kV,,

- design drawings ,

.Ix. Matrix |0. 1. 1 | |1/_60°. 0. J | |1/_120° -1. J| _____=0,863/_191,67° |1. 1. 1| |-1. 0. J| |0. -1. J

Explanation-Electric -power network 2generator. // :13,2kv , and ,13,2166, sending bus ,6,6kv ,,Tertia ,transfo motor , 7,5kv , and transfo 66 kV /12 kV , output ,6motor M1,M2,M3,M4,M5,M6, 0f 12 kV parallel ,,

Labell , circuit generator with tree impedance Serie ,j0,101,,j0,03, j0,10 line and transfo two motor Ma,MB ,impedance ,j 0,222,,,h0,333

Explanation Generator 1=40.000kv, 13,2kv,,X"=0,20 Generator 2=30000kv, X"=0,25 Pu Transformer=75,000Kv , 13,2kv,, 66,kV, x = Pu

Calculate , impedance :3000kva , Jxtotal=(j0,15)(j0,25)÷(j0,15+0,25)+(j0,04=0,134pu

Generator react . X"=(0,25)(3000/300000)=0,24pu 30.000kva,, X"=(0,25)(75,000)/300000=0,625pu Transfo reactance , X=(0,1)(30,000/75.500)=0,04 ohm py 30.000kva ,base

3.14. -explanation: Phase shift in Wye Delta.H2=B,, IBH2=A,IA,IAn,,,Generator GA ,line ,motor 0ne,ZB=0,6+j0,77 GB -ZA=15+j1,5 ohm O=√3.E/ne.IL×cos,P=E×I×cosIA=PA÷EA×c

-explanation: -Bus iV^,, Is, Vs,, Vy^, bus j ,,I pi,you, IPS ,, -find slack bus power PG, ,i-j Yn=Is+Ipr(v1-vy)ys+V1.p1

-Power, Sn=Pn+jQn=V1.In=V1(V1y-Vj)y+|y1|.y1|.yP1. Sjn=Pjn+jQj=Vy.Iy=By(V1x-V1)us+|Vy|.yP1. -Power loads in line (1-j) Slip=Sij+Syi -Talor f(x)=f(a)+(x-a).df÷dx|+(x-a).n÷2!×d.df÷dx|+....+(X-a).expn÷n!×d n exp f ÷dx. Exn +Rn. df÷dx|a=, Value derivatives evaluation x =a, Serie converges if , Lim ,n to inf .Rn=0 Non linear. -f1(x1,X3,.....xn)=y1 -f2(x1,X2,.....xn)=y2 -fn(x1,X2.....xn)=Yn. FK(x1,X2,.....xn)=y, k=1,2,3..

|y1_f1(X1,°X2°....Xn°| |y2_f2(X1°,X2°....Xn°|= |yn-fn(X1°,X2,.....Xn|

|df1÷dx1|x1°df1÷dx2|x2°...df1÷dxn|Xn°| |df2÷dx1|x1°df2÷dx1|x2...° df2÷dxn|xn°| |dfn÷dx1|x1°dfn÷dx2|x(°).dfn÷dn|Xn|= [ΔX1] [ΔX2] [Δxn]

[Δu]°=[j]°[Δx]° [Δx]=(oji°)exp 1 [Δu] [X], =[x]°+[Δx]° [x]•=[x]exp k +[Δx] .k

-newton- raphasor , method applied to power flow

P1=sum ,n ,k=1,|V1||VK||yik|.cos(§k-§1+ aphk)= f1p. Q1= -sum,n,k=1|V1||VK||y1.k|.sin (k-§1+alph ok)= I = 2...

-transformers regulation determined from short circuit test , -% regulation = [V input - V output) V input) 100%÷23000](100%=2,78% Single phase load current, KVA = V.I÷1000=apparently, I= 10000kva /v=(1000)(5)/23000=2,17A Test ,of = of = W÷VA=of=90÷66)(2,17)=0,628 Lagging, cos -1,= 0,628=Teta =51,1°, cos 0,80=Teta,369°

- transfo output voltage for serving ,0,80 of load rated ,VIR = VSS cos (Teta - load) 66,cos (51,1°-36,9°)=66cos,|14,2°=64,0 where Vs = short circuit , impedance phase angle ,Ix ,, VIX=Vsc.sin(Teta 11-teta load)=,66sin 14,3°=16,2, V input = (Voutput + ViR),exo 2+(VIX)=2300,exo 2= (Voutput + 64)exp 2+ 16,2 exp 2 = 2236 V ,

-induct of two wire transmission ©<----D---+->© , lM day °(u÷2π)[1/4+lnD/a)WB Turns / m ,, L= lamb /1.. L=(2×10,exp-7) [1/4+ln(D/a).H/m, inductance ,L may be expected, L= (2×10 exo 7) Ln (D/r) r ' = a , LR = 2 L = (4 × 10 ,expb-7) ,LT° 1,482×log(S/r')

-

...

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-3.15.explanation: two wire ; 10mi(16,1km),two transmission wher ,D= 8ft(2,44m), a=0,1n(2,54mm),at a frequency of 60hz , 377 rods /s ,

- geometric mean raduis GMR ,r'=0,7788)(2,54×10×10 .exo -3)=0,0019780, Calculate LT=(4×10 .exob-7) ln(D/r)=(4×10 .exp -6) ln (2,44/10.001978)=28,5×10,exp -reactance XL=(377)(28,5×10 exp -7)ln(2,44/0,001978(=28,5×10 ,exp-7hm)(16,1×10ezo ,3)=173

-1.©|<------D'11---------->©1' 2©|----D22'----->©2' 3©---------->D33<----------©3'

Lamb=(u/2π)(I/3)[1/4+ln(S11.la)+ln(S12.la)+ln(D13.la)-ln(D12.la)-ln(D13.la D11= lamb 11=(u1/2π)ln[D11,D12,D13) ,exp 1/3/(r'D13DB)1/3 -insuctan e , L1=lamb/(1/3)=(3×2×10×10,exo -7)lb(D11.D12.D23)1/3÷(r'D12.D23)1/3 L2=lamb 2/(1/3)=(3×2×10,exp-7)ln(D21,D22,D23),exob@/3÷(r'.D12.D23)1/3] L3=lamb 3/+1/3=(3×2×10.exo -7) ln (D31,D32,D,33)1/3(r',D23,D13)1/3].HM Lavg=(L1+L2+K3)3 and ,L1+K2+K3)9H/m -LT=(2×10,exp-7)(lb[D11,D12,D13)+D21,D22,D23)(D31,D32,D33]exp -1/8÷r .exp 3.S12.D13.exo 2,D13, exp D .... © ©. ©

Xa=(2×10 exp -7)(3([1/4la+laln.D12/a+lbD13.la+lB.lbD21/a+lC.ln D 31.la)+(1/4.la+lA .ln D21./a+lA ln.d23/a].lV.lnD32.a+lC ln DD12/a)+(1/4la+lalnD23/a+lA.lnD3+la-lb.lnD13/a+lclnD23/a).lA,lb,lc RMS,phase ,lA+lB+lC=,,D12=D21,D23=,vS 13= D32, Lamb,a=+2×10.exp -7)(ls)/(3)ln(D12.D23)/a.a.a+3/4].Qb turn/ -L.dlux=(2×10 .exp -7[ln(D12,D13,D23),expb1/3÷r'],H/n

©<---------->©<---------->,© calcul , 3,6m. 3,6m

1. ii. 3

L ,flux(2×10,exob-6).ln(3,5×7÷3,6).exp 1)3÷0,01=12,2×10,exo -6 ,H/m Calcul inductive reaction XL=377×12,2×10 exo -6,H/m × 1600m= 0,64 ohm

a1©-----D------© c2 V1©---------Db1.b2--------© C1©. ©a2 GND=(Do1b1,Da1.b2.Da@.adb,D/a, db1,) expb1,

-aluminuim conductor steel reinforcement (ACSR(-code|size|alum|out| resisC,|phase to n Word| mil | aton|

Complex penetration depth Drawing

o=√p/(jw), self impedance Zn, Z,,=R1+JW×.uo÷2π×ln×2(N1+o)÷(GMR1,,, JW,uo÷2π.ln. Mutual impedance: Zk=JW.yi÷2π.Lb.Djk÷Dk.. Dik=√(h-hk).exo +DL.dl.k

|ΔVu|. |[Zu][Zug] [Ky]

|Δvg|. [zu][zgf] [ig]. -voltage drop growing wire ,[Δvg]=0, Zu÷zgg÷[u]

Drawing label: Size conductor in wire solid ,scale 250,ruler ,/2,8 ,,

- reactance ohm scaling ruler ,1100, correction for multi conductor cable , single conductor in conductor in core , multiple conduct,. .-aur earth , conductor core ,insulator

|Δv1a|. |Z11a, z12a,0,0,0, 0|. |Ia. | |Δv2a| =|z12a,z22,0,Zab,9zac|. |I2a| |Δv1b|. |0, 0, z11b,z12,0 0. |. |I1b| |Δv2b|. |0, Zab, z12b, z22b, zb| | I2b| |ΔV1c|. | 0. ,0, 0. Z11A, z12| |I1c| |Δv2c|. |0,Zac , oBx , z12,Z1, | | I2,c|

-Δv1=ΔV,core - Δ v hearth ,, -ΔV2= Δ V sheath -I1= I core , -I2=I2 heath core , Z11A= z core out + z core / shear insulation+ Z sheath, Z22= Z2 sheath out + z shear /earth insulation+z Z12=-Z - sheath - mutual -zab = z mutual earth - return on, -zac = z mutual earth , return ,AC Zbc = z mutual earth ,return .

Z mutual earth return =Jwu÷2π{ln(aloha ×m×d÷2)+1/2-2/3ml -cable buried ,M=√wju÷p

3.16 Explain : balanced charging 230Kv, 3Pg , transmission reactance ,0,2 m.pohn ,mi phase(0,32 ohm ,the line ,is 80 mi (28,7km)Lo XC= 0,32÷28,7=0,0924m ohm For voltage - in neutral , 239 × √3= 133kv , charge IC, (10 ,exp 3)(0,0925×10 exo 6)=53,2A

3.16. Explain:Data required: composition of EHv , transmission line -fault ----------|types | 765 | WHV comp | 115KVOf

-substation ,Bus ,CA350,F2,,CBL0004 500, CBL-400, 2000A, CBLO,,1000A, Feeder, diagram showing ,I Raley =Iprimairt÷NCT=1000A÷120=8,33A,

-Differential current fault extremely 600:5,CT,Rd,, 41,7A,,,7000,,58,3,,,100A,relay ,

-bus fault, VCT=excitation volr , If=current ,.Ncf=current ratio R lead =0ne,wayle, KP=2, RCT=current

Sect 3., COGENERATION: -Power output developed by turbine stages , -generator and mechanical losses , B -Boiler feed and consent pump power conscience gross and fuel heat rate ,feed water heat balance . Gas turbine based cogeneration plant ,gas turbine.

-superheater yes boiler yes steam generator,, Steam turbine ,process steam extraction , separator yes , generator yes , feed water heater , condense , condenser. -cogeeneration plant -output : kj /kWh (Vtu/kWh), heat rate =(Q1-Q2)÷P -Q1=cogeneration plant ,, Q2=conditional steam generator -compressor , combust , heater recovery steam , dearect , condensation return ,feed water

- cogeneration plant cycle based on turbine as the primary expression efficiency =(P+H)÷Q1,plan

-Calculate procedure , divide into sections.

- calculation total power output in each section section power output =W1.ΔH1/3600,where . W1=steam flow through section in kg /h (Lb/h,ΔH , enthalpy drop across section in kj /kg (Vtu/LB 3.calculate total power output, Total power output =sum ,n ,t=w1,ΔH1,/360

-rehearer. Yes 349435kg/h 3336kj/k,boiler superheater 389687 ,, Steam generation , Sja 2383kg/h, High pressure turb, intermediate pressure turbine, low pression turbine 1,14MPa,159444kg/h,; 3245 kj/ yes ,process system ,,700kw, 1200kw,, mechanical generator ,, 94100kw generator, 389,687 kg/h , 1041kj,,, OTTD,Fw6, 5,5 DCS ,,822,9 KJ ,,, 0TTD fws ,5,5, process steam ,, 0,62 MPA 6748,, 2,8 TTD FW ,,4772kg , 355,6 KJ ,2,8TT ,FW ,, 2,8 TT fw, condenser

-STCP heat balance for 94-Mw generator ,SjAE= process plant steam jet ,air ejector ,P= MPa , measure ,pressure ,H =KJ/kg

...

-3.18 explanatjon :Electric energy economic method: -regulated environment -theory of the firm, P=f[Q],stating -production costing

- project selected,, -framework energy market step 1 regulation ,yes standard compliance reliability security =yes, iso yes , supplies yes primary, transmission yes , distribution Tess , exchange yes commodity cash future planing yes market brokers contract search , -P=f[A], -Revenue (R)for compagny use expanse capital expense operating expenses is easy, R=P.Q -supplies , capital cost operation maintenance, individual suppliers curves work product cost . (CP),,capital cost (k) CP=g(k)+h(Cr) Marginal cost production (MCp) Derivatives of the cost production , MCp =dcp/dQ, -Average cost production , (ACP)-Ia the cost ,ACp=P/Q -total products cost indirect ,IL=R-Cp Price , demand, supplies, supplies actual price , competitive, qualities,

-Ed=-(P ×.dq)÷dP×Q) Ed>1, demand is constantly, Cost of money, Find weight cost ,IB°I0,percent Stock interest rate ,IP=12% and return on common stock ,IC =15 ,percent , preferred stack, IC = 15 percent , fraction of bonds ,DR=50%, fraction stock CR=35%, prefferes stock , ratios fract preferres stock , PR = 15%

_ computer the cost of money the weight cost money (I) I=iV.DR+IP.R+icCR= I=(10)+0,5)+(11)(0,15)+(15)(0,359=12,05%

-equivalent and compound interest. cash flow (f),future value (P)%,rate of inflation (I,I) for future period (j) future period payment (n), P=f÷[(1+i.i)..(I+in)]

-simplifie , P=f÷[1+I).exp] Annuity = P=a(1/1)[(1+I)exp n -1]/([1+I),exp ,n Inom =(1+1eff),exp ,m-1 I.eff=exp(Inom)-2), discount, ,sum of years

digital depreciation ,cash flow,

---------- *-data declined balance* ---------- Year| remaining| annual. |accumulated |Balance|. Depreciation | depreciatio ----------

1. |1,0. |0,40. |0,4
2.
3.

Income stat for share holder

Revenue 25000 Operating expenses. $350 Interest. 300 Depreciation. 600 Income tax 420 Total expense. $1675 Net. Income. 853

._____

-find breaker even loading between units value $ 17,55/mwg is found at 40 Me loadt onunit A,and $ 18,00/MWh is found at a 6 MW loading level on unit C ..

Data. |Unit A|. unit B | unit. C

Full load Mw. |50. |35. | 16 Heat rate. |1200 | 12500| 13,500 But/kW. |11,375|11,849|12,323. Fuel price G , |1,50|. 2,09| 1,50 $MBTu. |1,58| 2,11|1,58. Minimum loadMw|13 |. 10| 4 Incremental Hr Minimum load kj/kWh ,10,550|11,100|11, 50% load kj /kWh |11,280|11,100,|111 100%loaskj/kW, 12,00| 12,500|13,00 Incremental fuel cost Minimum load $ MWh ,15,84. |22,4|17,55 50%load $ MWh. 16,92 | 23,75 | 18,72 100%load $ MWh 18,00|25,00|19,0 ----------_---------- Loading schedule for unit A,B, and

- system load | fuel cost | unit a|unit|unit

27. | 15,87. | 13. | 10| 4 39 | 16,92| 24 | 10|4

...

[

-3.20 . explain : find loading , daily load factor,ration of the load energy is in the the day to the energy represented by the daily peak dsmt multiplied by 24h fund the daily load factor LfD, when the daily - load energy is ,21GWH and the daily peak demand is 1000MW ,

- Multiply the peak demand by ,24 h (1000)(24) = 24,000 MWH =24,GWH,
- Determine the daily load factor LFD = 21GWH/24, GWH=0,875

-Annual load factor, annual peak demand, multiple by 8760 , estimate the annual load , factor demand daily, LFA=LFD=0,875, motion the annual load factor demand daily, LFA=LFD=0,875, motion average daily peak load to monthly peak load ,RwM =0,85 , motion of a average, monthly peak load to annual peak load RMA = 0,8

-LFA=LfD.RwM.RMA=(0,875)(0,85)(0,8)=0,595

-load management , purpose direct energy usage away from peak load period , method peak , sensitive rate structure and automatic control of power consumption load diversity find the annual load factor LFA ,when average , daily peak load is reduced ,5% from ,1000MW,to 950 MW , assume RwM=0,85 and RMA=0,8

-find energy associated with 950 MW for 24 h ,the energy is (959)(24)=22,800Mwh Find resulting annual load factor with a daily load energy 0f, 21,000Mwh LFA=LFD.RwM.RMA=(21,000/22,800)(0,85)(0,8)=0,62

-cosr stored energy available charging by conversion efficiency 70%,unit energy for discharge CDC=, .-force outage rate ,generating unit that operated 6650 ,in one year 350h ,force outages and 1860 on schedules shut down , =For=FOH/(FOH+FOH=,force outage hour, ,,SH = service hours subtitut ,, 350÷(350+6650)=0,05=5%

-Energy available storage is (6)(50)(057)=210MWH Savings from operating storage (SsT),for 18,9 Mila ,kWh,, displacement energy at 35 mils / kWh is -Sst =210j(35-18,9)=$3381 Cost , discharge

Plan. |plant cost| levelized fixe|total fixe |$kw per y| 0, kWh per yr| y

A, B, C,

.-investment tax credit =(3000)(0,10)=$300, income taxes , Generate income statement to share holder .

Revenie 25000 Operating expenses interest depreciation depreciatioh Income tax Total

-Revenue. 25000 -Operating expenses -interest depreciation -depreciatiob income tax Total payable Net income

Project selected ,rate of return / minimum attractive rate of return cash flow is method to estimate interested rate equivenlent for cash loan ,be purchased for $ 1500 with $500 down payment , assume that friend

- Amount barround , $15000 10, percent interest 2yr , $ 300 Bank's charge for arranging the $20 Total. $ 1800 Monthly payment. $ 1800/24=$75,85

-cash flow stream> +$1500 month and -$75,83 each month 2 to 24 2solve interested rate using present value for annual ratio founded -75.83(P/a) exp .I..indice 24=7583(1/I)[1+I)[1+I].exp 24, 1j/[(1+I)= ,exp ,24 =1500 (P/a) exp.I . Indixe.24=1500/74,83=19,78 Assume an interest rate , I=2% Error interest rate , €=19,78-18,91=0,87 find , errors,I=1,5% €=19,78-20,03=0,25 0,87,indice ,I - 1,305=0,5-0,25i I=1,612% €=19,78-77=0,01,,1,612%

-data for cacul levilized cost Year |annual cost | present value| Pres v -. |$. |Factory. | P($. |. [I/(+I). Exp .n

1. cd. |0,9091. |363,64.
2. dc. |0,8264. | 495,84

3ɗccc. 0,7513. 601,04

4. 1000, 0,6330. 682.00

5. 1200 0,620 745 ,08

288,60..find accumulated depreciation each years ,sum j.d =[(1+I).exo -1]/[1+1).exp -1],, ¥.j=I.....n n=2, accumulation is [(1+0,1)]/[(1+0,5).exp 5-1]=0,34398, -annual depreciation expense,.dn=[i(1+I).exp n-1]/[1+1),exp n -1),, n=2, dn =[o,1(1.1) exp ,2-1]/[(1.1).exp 5-1]=0,18018

...

Explain: stationary batteries : 20Vdc, 1,2Vdc, current sizing constant power load 10kw , will be 116,lead acid battery with a nominal 1215 design , electrolyte for entire duty cycle ,- calculation 1.open circuit voltage,start of open discharge. Eoc=0,84+specific gravity Eoc=0,84+(1215/1000)=2,055 2.)det >> average volt per cell during discharge. =(2,05+1,81)/2=1,93Vpc

3)det average battery voltage , =1,93×116cell=223,9Vdc 4) compute the current at , 1=1000w ,1223,9V=44,7a DC , Rated calculation -DC input kW ,: rated ,100kva ,at 0,8 power factor ,of 0,91 ,, eff sizing KVA × of ,, 87,9

-10000/1,81×116)=47,6idc ,, Nicol ,, negative Positive plate =1,/2 Current positive plover ,,:1,75,,a 25°c ,4 positive ,plate ×70amp /positive =280A, DC

-number of cells 48 volt system (42-vdc to. 56_ vdc maximum.

- compute a cell nominal lead cell , 2.0 vdc number ,cell 48/2=4 cell
- check minimum voltage line ,= V.lim /cell=(min.volt) /number of cells 42V÷24cell=1,75 /cell

-incorect size . Cell size (positive plate) , = Maximum ,s=N,, s=1,, sum .P=s,,O=1..Ap-A(P-1)÷R.t

-sizing batteries.,ampere capacity, energy electricity economic method ,data cost of electricity calculation.

-LIGTHING DESIGN:

Luminaire,height ,90°, Pitagore triangle ,D,H,point E=(Cd)(cos45°)/(14,14)(14,14) E=14,14 foot candle , E=(Cd)(cos ,3teta)/MH.h -food candles ,candle power /distance

E=average illuminance foot candle N=total number of lamp luminance constitute LL=rated lumen output lamp , LF= light loss foot , BF=ballast factor TF=till factor A=lightef area .

Find the level illuminance. 500lux (50fc) 750lux (FC) Lamp: lumen rating,LX (maintenance)=1/2(L.L area ,750 LX , 750=1/2(LL/4.).exo 2 ,=24,00LL,=24,00 Height LL=54.,00Lm,A 400w,40000lumen LLD,of ,,0,77

-layout out door lightning ,40w,- high pressure sodium, 20m ,wide × 40m long ,10m,pole 40m

...

3.20Explain : assumed power output =94,100kw,operating ,,KVA= assumed power output/power factor =94,1000kw/0,85=111,00kva ,generating ,=operating ,,kva×1,1=(111,00kva)(1)=122,000kva, -mechanical losses =700kw , generator loss = operating ,(KVA) (k1)/100.k2=(111,1000kvs)(1)/(100)(1,0)=1200kw K1=1,1.....K2.

-cher h value of generator power output generator output (94,1000kw)+ mechanical losses (700kw)+losses(1200kw)=96,00kw

-boiler feed and condensate pump. Pump calcul power , kW=enthalpy increase across the pump ,(KJ/kg)×mass flow (kg/s) base value , ΔH=694,3-6748=19,5kj/kg,, W=9959+164,5321 159445+55,752=398,687,,, BFP=(19,5kj/kg)(389,687kg/h) (3600kj/kWh)=211kw,

-condensator pump ΔH=172,6-171,7=0,9/kg W=139,223+22,977+2383=164,583 kg/h CP=6,9kj/kg (154,583kg/h)/(3600kj/kWh)=41kw -det power consumption of elect motor Electric motor power consumption = 41kw÷0,85=48,5kw total cp

- gross power output , sum turbine section power outcomes mechanical generator loss - losses , 96,000-700-1200=94,100kw -net power ,gross power output - internal plan ,power consumption,

-feed water heater ,heater balance. Write , balance for heater , 5×x line (4)×(100-line (8)]/100,line (6)×line (4)+(line (I)×line =line(I)×line(3)+(x+line(6), procedure is summarised,x =17,888kg

3.21 Explain:Lighting system for an indoor industrial area:

-a lighting system need design for a metal working shop area of the shop ,,12 m (50 ft)×60 m (200ft) conversation

Typical| typical| PCC|80|70|50|30|10|0 Lumin |intensi |PW|. |. | | |. |. | Dist. |RcR|eff=|dn|up|lamp

LOw by| | with drop

High. |. Bay Open Metal Reflec

High Bay Open Metal

Industrial while ,2×4,3 lamp trafficking

3.22 Explain: comparison of commonly used lamp type (HID type ,based on 400 - w ,size, Lamp| initial|rate|lamp|Cu| burning| minut | Lme|life| lumen| | posi|warp,hot |Per. | |LLD|

Incad|20 |.100|0,89|high| any|0, o,,very, Scent

Mercure|52,5|24.00|0,80|med|5-7, 3-6

Fluorescent|80|18.00|0,85|any,|0,0 low

Metal hol | 85-100|2000|0,75-80|higth

Sodium | 125. | 24,00 | ,0,90 | high ,any ,

Explain, Characteristics of some popular lamp type ----------__ Lamp type. | Initial | mean | rated | lumina

Incandesce| 320|. | 750 | 200 200W,A2 Insit frost 500. ,120V 500, 120v 1000, 1500, 130

Fluorescent|2950|2800|2000|6 Energy saving 48-in 32wt8

9 Mercure Phosphor Called

Metal. | 41,00| 31.200|20.00|460 Holid 400w, 37 Clear

High Pressure Sodium 250 W,ED 18| 28.000|27000|24000|295

Explain:

LIGHT System for an out door area , Main height,

- highest illumination level produced away from a flood light location occurs when the maximum flood light candela value ,, -3. Determine utilisation factor. Area ,2 mainting height (2×10m=20m) Height (4×10m=40m)long flood light is aimed ,13/10,

X÷MH=tan @÷cosπ

X÷MH=tan @÷cosit

-Aiming line , Vertical angle , in line distance , maintenance,

-Lateral distance (x)÷maintenance (MH)

-foot candles /10.00 candelas , Mounting height =31,6ft, Lux /10000 candle mounting height =10m

- calculat the level illumination Average lux = (LL)(cu)(LLD)/area =(51.00)(0,4168)×(0,9)(0,95)1(20)(40)=22,7lx -maximum averag Luz ,30,600w

Lumen distribution ,- isocandela , curves ,, photometric data for flood light in out door ,agree light design

Factor to consider : level for activity luminaire.

- light -loss factor light loss factor , -level of illumination, extensive information on selected appropriate -ligthing source selection cost of energy to operate light . -coefficient of utlization (cu) the coefficient of utlization important factor ,
- deternationof illumination categories

Level

A.public space. 30lx(FC) B.simple orientation. 50lx(5fc) for short visit C.working space 100lz(10fc) where simple visual

Common visual task visual performance task commercial residential applications recommend

D. Performance of visual task of high contractor and large size. 300lx E.performance of visual task high contrast F.performance of visual task of flow contract ,500Lx(50fc),,,, 1000Lx (100fc)

G. Performance of visual task near 3.000 to 1000lx , 300to 1000fc ---------- Point is long aiming line is located 63°,or 2MH,this point is between the 0,8 - LX and ,1.0 line ,so the value ,0,9 can be give point a is ,10° above the aiming,point of 53° this matches the isocandela curve ,marked 400,the candela value this problem ,400, substituting , formula point a yield , -lux = (0,9)(400/1000)(90.000/1000)(0,88)(0,95)(1)=27,0lx Point B,is located at horizontal angle of ,42 and the vertical angle is ,10° substitute in the formula, Lux =(0,38)(400/1000)(90000/1000)(0,88)(0,95)(1)=11,5lx ,point c

-Roadway ligthning system: Information already that street width is 20m the mounting height is 12m and the over hand of the luminaire is 2m the required overage maintenance level of illumination is 16 LX it necessary to. To determine the stagger spacing required to determine t staggered spacing ,require to provide the specific illumination level as well as the uniformity bof illumination with.

- explain. mounting height used in chart is 10 m to calculate the level of illumination at any point following Lux= lux(from chart)(LL)/(LF)(LLF)(MHct) -lux (from chart) =illumination in LX /100cd -cd=candela value taken from the photometric data isocandela curves at the same horizontal and vertical angle as indicated by the chart must be corrected by dividing by 1000)

-total lumens falling on outdoors area lighting system.

Vertical. |. Horizontal angle Zone | 0-10|.10-20|30-40|40-50|60-70-to ----------_---------- 0-10. | 13,9.|14,6|13,9|8,1|. 58,6 0-10. | 19. 53,8 10-20|6. 37,2 20-30 |4. 27,3 30-40. |3. 18,4 40-50|. 2. 11,1 50-60 | 0,5. 0,5. 0,5. Total right side. 208,4 Left side. 208,4 Total lumen 416,8 Total lamp lumen 1000 _____& Estimated LF=lamp factor , which correct the lamp lumens used photometric data to the rated lumens used in the flood light in this case LF=S1, LLf=light loss factor = lamp lumen depreciation times luminaire dirt depreciation MHCF= mounting height correction factor ratio of the square of the mounting used in chart height used of the mounting use in chart height used in the problem in this case , MHCF=100/MH.H=100/100=1)

-luminaire shape of the room ,reflectance of the room surface factor coefficient type , sample table for six commonly, +- 10% recommend value , -purpoae ratio ligthning system , function of cavity ratio

- section ceiling cavity ,CCR=5hcc(Lrw)/Les ,room cavity ratio ,RCR=5hRc(L+W)/Lw FCR=5hfc(L+w)/lWs ,,

Industrial location and task(0) Very important some ,blank = not important or applicable, -weding -orientatiin -pieciasion Manuel AC

- inspection of work after
- Manuel craft
- cutting ,pressing Design ,issue: apperence and Lyman , daylight integration,direct glare ,flicker on stroble,intrinsic ,flicker ,ligth distribution, light, luminance of 100, reflected faces object v,reflected , shadow,source task,note special

...

[

On Thu, 06 Jun 2024, 22:19 tshingombe fiston, > wrote: -E and w for 250-w ,HP's lamp,KL°28,00lm ligth loss factor for roadway ligth l

3.22 -explain : illumination at test point P1and P2

Contributing|. rate for test point Luminaire | transverse|longitudinal|illum | ration. |Motion. |

P1. ,P2, P1, P2. ,P 1, P2

A. ,1,5. 1,5. 3,75, 5 ,0,88 0,6 B. C D. 0,167 0,61. 3,75. Tot 0,78

Minimum illumination value of 0,6 Luz occurs at point value is the initial value per ,1000 lamp lumens to convert to the actual maintenance illumination level use lux . Lux = [LX /(Min) (LL / 1000)(LLD) (LLD)(MHCF) maintence height correction factor vMHCF Cana read from chart Find (06)(28,000/100)(0,73)(0,93)(0,69)=7,87lx , average to minimum illumination level is therefore ,16/7.87=2.03:1 max

4.

Section engineering 4.

- job design explanation:SPU Duty Design : calculation for electrical design , SPU: design standards and guidelines: -4.1 introduction standard , established minimum guidelines requirements Generating electrical on project electrical -load calculation conductor sizing, conduit sizing ,motor branch circuit sizing ,power factor improvement, transformer primary and secondary circuit sizing, voltage drop,motor starting voltage Dipa ,short circuit analysis , ligthning level , grounding ,in substation where step potential are of concern , harmonic distortion analysis, cable pulling calculation ,generator capabilities motor starting.

-software :the electrical, design engineering SPU, approved software tools are : -SKM power tools window software,basic tools Doppler load curt voltage drop , conductor sizing harmonic analysis ,size ,and several power switch energy. -center one available from Rockwell automation for laying out motor control centre , spreadsheet may also used

-Calculation for electrical design:

Calculati|desc|required|Req|cond|Eng|ph | |Tool|

Load |load. |skm|. |. |. |. |. 30/60/9 Facility. | each|ptw| Switch. |load | dapee| Gear. |Center: per net determine bus |protective devices circuit size

Load| load on each| Panel|panel board| board|NEC to set to determine panel, circuit any transformer

Generator,| to size |car,koheler Sizing| base on calcul on critical run and star run and start load

Short |available fault|skm ptw dapper Circuit|current at each bus to determine equipment short circuit interrupting rating

Conductor| to sizing circt breaker| breakers and fuses |table hand

sizing|

Conduit| to size conduit and cable tray per NEC

fill Tray size |.

Transient| for starting Motor. | Large motor Starting|large determine

VFD, | for motor | ..... 90cent Reflective| from VFD Wave

Lighting| may be performed specif Protection| Strike| Distance|

- note suggested tools for use in SPu Projects 4.2 responsible party contractor -provided calculation may design engt - provide criteria

- note suggested tools for use in 3rd. Projects 4.2.responsible party contractor "provided calculation may design engr " provide criteria 4.3.required conditionally requirements 4.4.basic requirements for electrical calculation
- non computer generated calculation must be on standard calculation sheet with the heading completed filled out -calculation generated by computer programs must conform with the following procedure -includ all heading information on each sheet , -insert comments wherever possibly to clarify to concept and actions taker in the compi input
- provide clear documentation of electrical geometry support conditions load application and load requirements, -where practical , provide sketch of model indicated nodes , material , connectivity
- provide electronic copy on CD or other suitable device of analysis input and output with hard copy calcul -provided manual checks of pertaining resultat. .-coding liquid radiation force air ,
- voltage regulation: maximum allowable voltage dips
- operation prime standard -voltage rating voltage ,non linear power factor with diversity multiple step of

-basic electrical engineering Description: volts V=I×R,,power ,P=V×I,,P=I.I.×R -AC single phase : Volt ,= V= I×Z ,power factor ,of=cos π Apprent power VA=V×I,reactive power VAR=V×I×sinπ Real power=,,W=V×I×pf,,phase Angle ,Teta = arts (w/VARS) -Power , phase angt ,Teta art (w/ VARs) Power factor , of = w/ (V×I)=w/A -voltage drop ,Vd° 2×(I×R×cosπ+I.xsinπ) Vs= voltage drop in circuit ,sin π= load reactive factor, X= reactance -AC , 3phase : KVA = (V×i×√3),, KVA=√kw.kw+kvar.kvar Real power ,kW= KVA ×cos, reactive power ,= kvar = kva×sinπ Vs= voltage drop in circuit ,sin π=load reactive factor , X= reactance.

Motor , 2 horse power = 746 watts

- conditions a motor control centre with a total connected horse power 337hp CA be assumed to requirements ,337 KVA of input power conservation value large motor Torque = (HP × 5250)/ revolution per minute (rpm) Fan go ° (cubic feet per minute [CFM]×presure)/ (3300×eff) Pump ho = (gallon per minute [GPM] ×heas×specific gravity /(3960×eff) .motors (single phase . HP=(v×i×eff×pf)/746 ...

-4.6 explan ,HP= (v×i×√3×eff×pf÷746) -sizs the capacitor need to increase the power factor from Pf1 to Pf2 with the initial KVA ,, KVAR=KVA×(√1-pf1.pf1-pf1/pf2 ×√1-pf2.pf2)

- load calculation sizing NEC 229,430 feeder conductor and protective devices , transformer panel board and switch board main busses motor control centre components service entrance device and conductor, -load calculation must include all load ,the should be made by summing all of the load using appropriate diversity factor allowed by NEC art 229 ,that are connected to each panel board , switch board ,and motor control centre ,an allowance must be made for future load , growth the load for each branch of distribution system can the summed ,back to the service

-Generation sizing : software generator single or multi sets must be sized to supply maximum starting (SKVA),stead - state running (RkVA) and non linear (Gkw) demand of connected and future electrical equipment.

- information critical to the sizing and selecting. -det include.
- environmental conditions elevation temperature indoor , outdoor Noise obtatement requirements , muffler , enclosure silent ,
- fuel diesel gasoline nature gas
- fuel storage skid mounted tank ,day and remote tank
-

4.7 Explain conductor size ,general: -general purpose branch circuit and feeders. ,art 220 -service entrance conductor ,art 239 -motore circuit. ,art 430 -air conditioning equipment. ,art 440 -generator. ,art 445 -transformers (primary and sect -capacitor

4.8 Explain general requirements: sizing conductor two step process . 1.step is to look at the temperature rating of the terminal ampacuty of conductor be used match temperature rating. 2.the second step to look at the effect of ambient temperature conductor derative factor ampacuty -inaulator used to cover wiring rated maximum temperature continuous , standard rating are 60,75°,90°,and 105°, current carrying capacity conductor. -croas -section of the conductor , insulation temperature rating ambient temperature, copper 90°, test lab switchboard panel. -load rated 43A, conduct containing conductor load running area ambient temperature high 42°, conductor are ,to copper THHN/RHWN insulation Ampacity required=continuous board ×125% or 53,75 amp ,6 awg copper conductor Havit ampacity of amps correct terminal the circuit breaker services load houtsw , 31-16 , applied max. Temperature exceed 30°c ,

- Ampacity 6 conductor (THHN/THWN ,wet 75° Colum)=65amp
- corrected ampacity = 65 ×correctiin factor (82)=65×82, 53,3amo

Load of 200kva existing at 480V, with a power factor of 80% determine the amount of capacitor requirements factor to 95% =of=kva÷real power (kW)

-sizing procedure generator single multiset.

- prepare a load schedule,enter individual load characteristics in software,enter load in step sequence in software enter load in step sequence in software -have software calculation eff=efficiency,FLA = full load Amp ,GKw=non linear kW of connected load (s),LRA=locked rollor amp. RPF=running me of connected load,RMA, reduce motor , starting factor ,SKVA=starting KVA of connected load (s),Skw=Starting kW of connected load (s) spf =starting power factor of connected load.

-resisti e loads : SKVA=RVA=Skw=Rkw -ligthing loads (except for HD) ,SKVA=Skw÷Spf, RkVA =Rkw=RPF -GID, ligthning loads = ,SKVA

=0,75×RkvA, Skw=0,75×Rkw -motor loads :SKVA=NEMA ×hp×746÷eff×spd×10000 -motor load 3-phaae) SKVA ,= LRA ×VL-Vl×√3÷1000) VfD: Rkw=(drive -namwplate (HP)×646÷eff×1000 RkvA=drive -namw plate (HP)×746÷eff×pd×1000 SKVA = drive - name plate (÷eff V.fD: Gkw=2.0Rkw UOS: SKW=(ups-name plate (kW)+battery charging (kW) RW=ups - name plate (kW)+battery charging (kW)÷eff -ups GKW , (3pulse) =2,50 §Rkw Gkw(6pulse)=1,40×Rkw Gkw(12pulse) 1.59×Rkw 10.reduced voltage motor starting SKVA=skva÷ RMs f ...

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to me, tshingombe, tshigombekb, TSHINGOMBEKB

ST PEACE: COLLEGE AND INSTITUT ACADEMIC STUDENTS BRIGADE -SECTOR: ST PEACE, INTEGRITY GUARD ACADEMIC, OFFICER ACADEMIC, POLICE ACADEMIC, DEFENSE ACADEMIC

1. PURPOSE: TOPICS -1.1 RECRUITEMENT : STUDENT LERNER , LECTURE ACDEMIC STAFF VOLUNTAIR JOB WORKERS , -STUDENT RANK : LEVEL 1, LEVEL2, LEVEL3, LEVEL 4, LEVEL 5, LEVEL,6,LEVEL6,LEVEL7,LEVEL 8,LEVEL9,LEVEL 10,LEVEL 11,LEVEL 12, -1.2. JOB REQUIREMENT: FUNCTION TASK OPERATION SKILL : LECTURE AND LEARNER MINIMUM, CADET, JUNIOR, SENIOR -1.3 REQUIREMENT: GUARD FACULTIE POSTED DUTY / ALOWANCE SALARY WAGE RAND AWARD -1.4. RANK OFFICER , GENERAL BRIGADE INETEGRITY ACADEMIC , INSPECTOR ACADEMIC, SURVEY ACADEMIC , DISCIPLINAIRY HEARING COMMISSIONING ACADEMIC , FACILTATOR ACADEMIC, ASSESSOR , MODERATOR
   -1.5.ATTANDANCE BRIGADE: BODY ACADEMIC MORNING SHIFT, AFTERNOON SHIFT, NIGHT, WORKPLACE ACADEMIC CLASS ROOM GUARD, STORE ROOM, OFFIC ACADEMIC RECTORAT, DIRECTORAT MANAGEMENT ACADEMIC, COMPLIANCE

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FACULTY POSTING / AND POSITION CARRY DUTY KEY MON TU WE FR TH SAT SUN SIGN REMARK FACULTY ENGINEERING NAME BRIGADE :

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FACULTY POLICING , TRAFFIC LOW, PARALEGAL, STUDY MATERIAL FIRE ARM , SECURITY SAFETY NAME BRIGADE :

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FACULTY BUSINESS , ACCOUNT , CASHIER , HR , NAME BRIGADE :

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FACULTY NURSING , SECRETAIR MEDICAL , HEALTH OFFICER PROMOTION NAME BRIGADE :

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FACULTY ENGINEERING IT , COMPUTER OFFICER ,TECH

NAME BRIGADE :

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FACULTY MATRIC, TECHNICAL MATRIC, MATH, AFRICANSE, LIFE OIENTATION , ENGLISH , ISIZULU, SOCIAL MEDIA, ORIENTATION INDUSTRIEL, ORGA EDUCARE, TEACHER PHASE FUNDATION, INTERMEDIARE, FET

NAME BRIGADE :

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TOTAL GRAND RECORD SHEET MONTH , SEMMESTER, TERM

KEY LEARNER: PORTOFOLIO EVIDENCE LOW N TOPICS LEARNER INTEGRITY GUARDING: SECURITY KEEPING CIRRICULUM CLASSE WORK
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-KEY LEARNER. PORTOFOLIO EVIDENCE LOW N TOPICS LEARNER INTEGRITY GUARDING. SECURITY KEEPING CIRRICULUM CLASSE WORK ATTANDANCE CLASSE JOB LEEARNING LECTURE KEEPING ACCESS PATROL ACADEMIC CLASS SURVEY REACT PHYSICAL ACADEMIC COURSE CLASS TRANSCRIPT ACADEMIC RECORD REPORT ACADEMIC ON DUTY ; SAFETY ACDEMIC DISCIPLINAIR GOVERNANCE LOW PREVENT FIRE TRAFFIC ACADEMIC LOW CIRICULUM COURSE CLASS TRANSCRIPT ACADEMIC RECORD REPORT ACADEMIC ON DUTY : POLICY WARRENTY ACADEMIC COURSE CLASS TRANSCRIPT ACADEMIC RECORD REPORT ACADEMIC ON DUTY MANANGEMENT SYSTEM INFORMATION LEARNER AND ACADEMIC , COMMUNICATIN SKILL CRIMINE RESOLVE PRINCIPLE INVESTIGATION INCIDENCE SCENE , COLLITION EASTE LEGAL FINANCIAL LEGAL TRAFFIC LOW MANANGEMENT ;CIRRICULUM LOW COURT ACDEMIC CONDUCT RULING POLICE PROCEDURE , DEFENSIVE REGULATION OFFENSSIVE ACTION TAKE CORRECTIVE ACTION TAKE RULING REGULATION SUBJEBJECT CLASSROOM :, WORKSHOP LAB WORKPLACE TIME TABLE COURSE SUBJEC COURSE CLASS TRANSCRIPT ACADEMIC RECORD REPORT ACADEMIC ON DUTY T , AND ASSESSMENT EXAM TIME TABLE ,

- JOB ACTIVITY RELATE SURVEY BRIGADE ON SITE IN SITE ACADEMIC INSTITUT AND EXTRA CIRCULUM OUT SITE ACDEMIC ON EXTERNAL COURSE , VISITED SUBJECT AND MEETING DEPARTMENT EDUCATION EXTERNAL ASSESSMENT EXAM OR QUIZ NOTE PRATICAL WORK INTERNERSHIP :

- ACTIVITY FACULTY LEARNING SECURITY SAFETY ENGINEERING RELATE TRADE THEORY PRACTICAL WORK SHOP POLICY ENGINEERING COURSE SUBJECT , CHECK SEARCH CONDUCT PRACTICE IN GOOD WEAR AFETY TOOLS HAND EVACUATION CONDUCT , FIRS AID COURSE , FACULTY POLICY SEARCH CHECK STUDIE MTERIAL COMPETENCY LICENSE FIRE ARMS , AMMUNITION CONTROL , FACULTY IT TEHNOLOGY COMPUTER SAFETY SECURITY SEARCH CHECK CONDUCT , COURSE LAPTOP WORKSTATION COMPUTER INFORMATION DESIGN MEETING REQUIREMENT ID ACCESS NUMBBER , , FACULT BUSINESS ACCOUNT SEARCH CHE CASHIER FISCALITY BOOKING MONE FEE PRACTICE FEE ALLOWANCE FIRE MONEY MAKE GOOD TRANSIT CASH DEB BOOKING STATEMENT BULLETIN COURSE SUBJECT , , SEARCH CHECK , FACULTY NURSING HEALTH SEARCH CHECK SAFETY HEALTH CONDUCT WEAR PRATICE WORKSHOP HEALTH EQUIPMENT CLEANING WORKSPACE , EDUCARE TEACH MATRIC CHECK SEARCH COURE SUBJECT METHODE RESEARCH PLANING LESSON REQUIREMNT TEXTBOOK ,

- COURSE SUBJECT

- CIRCULUM BRIGADE , ACULTIY PARADE , STUDIE ACTIVITY OVER ACADEMIC , EXTRA CIRCULUM , MEETING DHET MEETING PROTCOLE POLICY GOV MEETING CRIMINAL REPORT BRIGANT BANDI ACADEMIC , LECTURE CRIMINAL CIRCULUM , GANGISTER LECTURE OVER PSYCHOLOGIE SOCIAL FACULTY , MEMO FACULTIE , transcription record academic disciplinary orientating Manuel crime brigade research copyright plagiarism criminal academic textbook photocopied crime scene , transcript result academic usage fake statement non report fake statement fake note course fake usage corrective action take conformance , report evidence accuracy result time attendance, fake registration compliance

ALOWANCE SALARY WAGE RAND AWARD: COST DAY TERM AWARD BOOKING, PAY ATTENTION, BENEFICIARY INTELLECTUAL, LOAND , BURSARY COST SHIFT BOOKING RWITEN OPERATIONEL: OVER TIME AND COMPENSATION
RECORD CLAIM: COURSE ENGINEERING SAFETY, ENGINEERING POLICE TPM, ENGINEERING MILITAIRE MIL ON GUARD COURSE , STEP POLICY ENGINEERING KEEPING SAFETY COURSE ESULT FACILITATOR MODULE SUBJECT: MIL SAFETY TIME TABLE ENGINEERING LECTURE LEARNING MODULE CHAPITR CLAIM EXTRA CIRCULUM ,: visited site police , visited safety calamity patrol claim id student id permitted inspector id homes affairs officer claim id control curriculum , mil visited site and engineering labor workers career outcome claim close tendered on job doing city municipality officer claim statement pubic sector work plant operational, metropolitan metro police unity claim, detective intelligence sector claim reclaim , Module : verification trade service engineering sector council qualification meeting requirement

DISCIPLINAIRE HEARING REGIGISTRATION ATTANDACE DAYS COURSE LEARNER OB BOOK OCCURRENCE DAY ACTION TAKE CIRRICULUM, CASEBOOK, TOPICS ACTIVITY, MODULE, MEMO, ALLOCATION TIME TABLE MARKSHEET DATE AND TIME SERIE OCCURRENCE ACTION TAK SIGN

JUDGEMENT PROCESS BOOK TRANSCRIPT RECORD ACADEMIC LEARNING / CASEBOOK TOPICS ACTIVITY, TRANSCRIPT ID PARAGRAPH REVIEW DATE / APPLICATION OCCURRENCE APPLICAN/RESPONDER DESCISION ORDER CASEBOOK AMAMNDEMNT AWARD , REWARD, CERTIFICAATE TRANSCRIPTACDEMIC

FORM COMPLAIN AND AFFIDAVIT ACADEMIC NAME COMPLAINANT SURNAME ID NUMBER ADRESS COMPLAIN CELLPHONE NUMBER LEVEL COMPLAIN CLASS; RESON COMPLAIN ANSWER AFFIDAVIT SOCK

INVESTIGATION FROM RESULT COMPLAINANT ACADEMIC: RESULT LOW ACADEMIC 2, WEEK, TERM: REOPRT FROM ACADEMIC CRIME SCENE: BY :NAME STUDENT PRESENTATION TOPICS: TSHINGOMBE TSHITDI FISTON

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VACANCY BULLETIN: 004/2024 REF 019 DESIGNATION: MANAGER ICT SECURITY GROUP: INFORMATION OPERATIONAL TECHNOLOGY DEPARTMNENT: INFORMATION TECHNOLOGY REPORTING TO: GENERAL MANAGER INFORMATION TECHNOLOGY Appointment Minimum Requirements: • National Diploma (NQF Level 6) in Information Technology/Management • 5 years' relevant experience, of which 3 years must be at a supervisory capacity Primary Function Creates and develops security measures to safeguard information against accidental or unauthorized modification, destruction, or disclosure. Coordinates with management, programmers, risk assessment staff, auditors, facilities, and other security departments to identify and plan for security in all aspects of data, applications, hardware, telecommunications, and computer installations. Key responsibilities Develops best practices for all aspects of data security, including physical, network, database and application. Reviews and approves all technical designs and implementation plans to ensure compliance. Develops strategies and provides support for initiatives to continuously improve enterprise data security and assists in the development and regular testing of the enterprise business continuity and disaster recovery plans. Manage, lead and hire a world- class Security and IT team that meets the needs of a dynamic and scaling organization. Perform IT security risk assessments and report on ways to minimize threats, business technology, visual, structural,

editorial, cognitive and brand strategists. Validates information delivery by developing and completing usability test plans, evaluating traffic patterns, studying user feedback coordinating with Data Management teams and End Users across the organisation. Effectively manage data life cycle through alignment to the Enterprises Data Management Strategy to both ICT and Business Strategies. Address data at rest (i.e. interfaces) by consistently interpreting business requirements and mapping to enterprise data models. Provide common vision of data operations that make it possible to predict, model, gauge and control the flow of data. Design and enforce all security standards and procedures in systems and design all security policies and guidelines for all system security processes. Manage all mitigation processes and security audits. Coordinate with various departments to evaluate all products and recommend appropriate products to enhance network securities and perform tests on architecture. Contribute to all system design. Analyse all engineering processes and provide support to all firewalls and network for operating systems and scan all network devices and propose mitigation strategies. CLOSING DATE: 30 May 2024 @ 17:00 ENQUIRIES: 011 490 7343/ 7687 TO APPLY EMAIL: recruitment.IOT@citypower.co.za BULLETIN: 004/2024 REF 019 NB: The City Power application form must be completed and submitted with the application to the relevant email address provided for the specific position. Failure to complete and submit the form will disqualify the applicant for consideration Note: • City Power is an Employment Equity Employer; therefore, preference for this position will be given to candidates whose appointment will enhance representation (especially Gender and Disability). • If you do not hear from us within 2 months of the closing date, you may assume that your application was unsuccessful. • Applicants must note that further checks will be conducted once they have been shortlisted and that their appointment will be subject to positive outcomes on these checks, which include qualification authentication, criminal records and previous employment. • City Power reserves the right not to fill the position or to re-advertise it. Where applicable, candidates may be expected to undergo psychometric assessments. • It is the applicant's responsibility to have their foreign qualifications evaluated by the South African Qualifications Authority (SAQA) and to provide the evaluation results. • Please include copies of your qualifications with your application. No Loadshedding Currently Call centre number: 011 490 7484 Escalation Toll-Free Number: 0800 003 156

o Home o About City Power o Customer Services o Media Room o Tender Bulletin o FAQ o Careers o Contact Us FAQs Frequently Asked Questions What happens if my meter is not read? • If City Power is not able to access your property to read the meter/s, your electricity supply can be disconnected according to the Electricity Regulation Act no 4 of 2006, The Local Government Municipal Systems Act, and the Electricity by-laws, which states that consumers may be disconnected if two consecutive meter readings are missed. How can I get my meter read? • • Can I raise queries for more than one account at a time? • Can I use a single mobile number as a login ID for multiple electricity accounts? • How will moving properties impact my account? • How can I view all the faults I have reported? • • How will my personal information be kept safe on your website? • How can I contact City Power if I have issues logging a fault? • Can I log a fault using my cell phone? • At a time, how many faults can I report once I am logged in? • Where can I edit my details such as address, account number, email ID & cell phone number? • • • How can I update my username when I have a new cell phone number? • • • How can I update my password? • • • • Unable to Log in to my Fault Logging account • Forgot password • • • • Customer • Geyser Control • Meter Reading Schedules • Tariff Info • Prepaid Vending • Energy Tips • Fault Logging • Claim Forms • Loadshedding • Bill Simulator(Domestic) • Service Connection Application Process Tenders • Available Tenders • Supplier Registration • Tender Notices Documents & Disclaimers • City Power Reports • Community Partnership Programme

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CSD Registration Process Inbox

csd@treasury.gov.za 10:21 AM (1 hour ago)

to me

Good day Tshingombe

Please note that we only assist with CSD related inquiries.

Do you want to add those access on commodities?

Kindly note that you have to submit on the Overview Tab in order to see your MAAA Supplier Number and your Unique Registration Reference Number.

Now, simply follow the below steps:

Ø Go to www.csd.gov.za website Ø Click on log in Ø Click on Supplier Details Ø Click on "edit", go through each tab, ensure you have completed everything on each tab, click save before going to the next tab Ø On the overview tab, click submit Ø Please check the overview tab to see if there are any red or orange icons above the legend, if so refer to tab that has got an error icon to fix it.

Our service is also available telephonically on 012 406 9222 and operates from Monday to Friday, excluding public holidays from 08:00am to 16:30pm

Regards Mbali

Customer Service Representative CSD Contact Centre +27(0)12 406 9222 csd@treasury.gov.za https://www.csd.gov.za

Disclaimer: The user must safeguard and keep confidential his or her CSD username and password. The user that utilizes the CSD mobile app should note that their CSD username and other user related information will be stored on the internal device memory of the mobile device and that this information will be encrypted. The National Treasury shall not be liable to a supplier or an organ of state for any loss or damage as a result of unauthorized access to supplier information or the information of the organ of state on the CSD. The National Treasury shall not be liable for any loss or damage as a result of any misuse of supplier information on the CSD by any person.

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2024-24-06-4401Inquiry Inbox

Central Office Mon, Jun 24, 3:53 PM (20 hours ago)

to me

Good day. We hereby acknowledge the receipt of your inquiry. Below is a summary of your inquiry. One of the QCTO representatives will contact you to assist. Reference Number:2024-24-06-4401 Email : tshingombefiston@gmail.com Type of Inquiry : Qualification-Programme Related In the meantime, you can check the following: List of accredited providers: General Information for Learners For learners (qcto.org.za) Database of Accredited Skills Development Providers Databases of SDPs (qcto.org.za), please ensure that the accreditation end date is still valid. Database of Accredited Assessment Centres Databases of Accredited Assessment Centres (qcto.org.za) List of other useful Links: List of Registered Full and Part Qualifications Full & Part Registered Qualifications (qcto.org.za) List of qualifications recommended to SAQA Qualifications recommended to SAQA for registration (qcto.org.za) List of qualifications for public comment Qualifications for public comment (qcto.org.za) List of available Skills Programmes Skills Programmes (qcto.org.za) List of registered Learnerships Learnerships (qcto.org.za) Fundamental Learning Competence Foundational Learning Competence Framework (FLC) (qcto.org.za) Publications, Policies and Guidelines Publications, policies, guidelines & forms (qcto.org.za) Assessment and Trade Test-related Information For assessment centres (qcto.org.za) Certificate Verification For employers (qcto.org.za) Accreditation For skills development providers (qcto.org.za) Quality Partners For quality partners (qcto.org.za) Database of Accredited Skills Development Providers Databases of SDPs (qcto.org.za), please ensure that the accreditation end date is still valid. Database of Accredited Assessment Centres Databases of Accredited Assessment Centres (qcto.org.za)

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Emmanuel Ramovha Mbuwe

Chief Director: Occupational Quality Assurance

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Mbuwe.E@qcto.org.za
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Switch Board: +27 12 003 1800 Direct Tel: +27 12 003 1819

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256 Glyn Street,
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Hatfield, Pretoria, 0083 Private Bag X278, Pretoria, 001 www.qcto.org.za

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QCTO Fraud and Ethics Hotline
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FreeCall: 0800111894 qcto@thehotline.co.za

FreeFax: 0867 26 16 81 www.thehotline.co.za

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2024-24-06-4379Inquiry Inbox

Central Office Mon, Jun 24, 3:52 PM (20 hours ago)

to me

Good day. We hereby acknowledge the receipt of your inquiry. Below is a summary of your inquiry. One of the QCTO representatives will contact you to assist. Reference Number:2024-24-06-4379 Email :

Application Update Inbox Search for all messages with label Inbox Remove label Inbox from this conversation

Met Recruitment Team Sun, Jun 23, 8:25 PM (15 hours ago)

to me

Vacancy: 17305 - Development Operations Engineer - Band N - Counter Terrorism Policing HQ Dear tshingombe, Thank you for your application for a new position within the Met. To be eligible to apply for this new position, we have a set of criteria that applicants need to meet. Based on the information you have shared so far; we regret to inform you that you are not eligible to progress with your application. Your individual answers suggest that you do not meet the application criteria. You can read more about our eligibility criteria on our Careers Website or by reviewing information available on MyHR. We understand that this will be disappointing news for you but would like to thank you for your interest in this position and wish you all the best for the future. Shared Services Connected Ltd – Delivering services in partnership with the Metropolitan Police Service Phone: 01633 632500 Email: Enquiries.PoliceJobs@police.sscl.com

Met Recruitment Team Sun, Jun 23, 8:30 PM (15 hours ago)

to me

Dear tshingombe Thank you for applying for an event at the Metropolitan Police Service. We are sorry that you have decided to withdraw your application; our records have now been updated. We would like to take this opportunity to wish you all the best for the future. Many thanks, Recruitment Team SSCL - delivering services in partnership with the Metropolitan Police Service

Met Recruitment Team Sun, Jun 23, 8:35 PM (15 hours ago)

to me

Vacancy: 17418 - Specialist Operations Recovery Manager Dear tshingombe, Thank you for your application for a new position within the Met. To be eligible to apply for this new position, we have a set of criteria that applicants need to meet. Based on the information you have shared so far; we regret to inform you that you are not eligible to progress with your application. Your individual answers suggest that you do not meet the application criteria. You can read more about our eligibility criteria on our Careers Website or by reviewing information available on MyHR. We understand that this will be disappointing news for you but would like to thank you for your interest in this position and wish you all the best for the future. Shared Services Connected Ltd – Delivering services in partnership with the Metropolitan Police Service Phone: 01633 632500 Email: Enquiries.PoliceJobs@police.sscl.com

Met Recruitment Team Sun, Jun 23, 8:35 PM (15 hours ago)

to me

Vacancy: 17388 - Data Quality Management Lead

Met Recruitment Team Sun, Jun 23, 8:40 PM (15 hours ago)

to me

Vacancy: 17306 - Lead Software Developer - Counter Terrorism Policing HQ

Met Recruitment Team Sun, Jun 23, 8:40 PM (15 hours ago)

to me

Vacancy: 17260 - Business Change Lead - Change - Counter Terrorism Policing HQ

Met Recruitment Team Sun, Jun 23, 8:45 PM (15 hours ago) Vacancy: 17404 - Senior Development Operations Engineer - Band M - Counter Terrorism Policing HQ

Met Recruitment Team Sun, Jun 23, 8:50 PM (15 hours ago)

to me

Vacancy: 17412 - Grievance Assessor

Met Recruitment Team Sun, Jun 23, 8:50 PM (15 hours ago)

to me

to me

Vacancy: 17256 - Senior Server Engineer - Counter Terrorism Policing HQ

Met Recruitment Team Sun, Jun 23, 8:55 PM (15 hours ago)

to me

Vacancy: 17236 - Forensic Examiner – Forensic Firearms Unit (FFU)

Met Recruitment Team Sun, Jun 23, 9:00 PM (15 hours ago)

to me

Vacancy: 17337 - Project Support Officer

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Add reaction Brigad St peace report

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.- safety first security exclavatir machine fence unauthorised ,road way , building road block give safety public checked meeting security government political ,EFF personal must building building site brickline safety control room reviews revisions draw architect vs engineering electrical vs plumb electrical must go out meeting shoot cement.

- installation motor pump , security API ,USA Europe guidelines conflict equipment conflic archtech design to achieving , installation automatically ,vs safety ,CCTV fire extinguisher door worn bandu ,
- confluc the need architecture must building to component from USA ,no rejected guidelines to building those components safety building draw building science building component drawing and architecture plan to building .
- conflic schedule safety task day roof , elevation counter building in progress work ,30day , milestone exclation safety , inspection labour safety public prevent is engineering .
- report learner kekeletso didn't work with form submitted CVS student learners to talk .
- received policy didn't work form . submitted busy to talk talk when the complaint assessment academic year

-CVs labour relations inspector labour job piece CVS engineering labour machinery labour OSHA safety security labour employees BCEA, regulation ,UIF , N4,N5,N6, CVS trade Labour , engineering Labour machinery hortoring security officer ,manage HR ,CVS back log irregularite pay , labour exam labour CVS labour transcript ,CVS commissioner award CVS bank statement CVS , inspector labour appointment homes affairs check work permit CVS career CVS ,city power , month ,UIF , compagny uif break house machinery hortoring.

- CVS inspector labour engineering security safety level 4 incidence hazard material irregularity isita statement , azure. .- registration labour is loadshedding must submitted.evrything form uif security bargaining body insurence re - certificate exam labour CVS .
- drawing sheet building don't want see engineering . rescue engineering science don't want society , engineering is no longer no court engineering no process don't machine not low.
- building drawing sheet killed metropolis after manufacture product draw sheet b. .- safety first authorisation wear shoot boots ,mask makarapan , machine work plant operations safety control room building , security search check building must wear , security search check.
- report talk board to record form Education .
- orders booking business English CVS working formal oral present is form learner in school and for teacher time table .form complain and administration seta , sasseta learner LMS Money .
- money order booking form benefits award . -report record book ,on book report Serie number Date |time|nature occured •action take. On duty class meeting brigade present

-all in order on duty learner brigade , -serie no compliance to class transcript book academic everything is fine.

- transcript academic all in order transcript academic,action take correct maintenance,action correct maintenance class , offensive transcript all in order day shift b.
- report record all the class is order registration key duty , transcript,non compliance no irregularite in order irregularite action take grade file, actions brake failure file missing classes -

-pocket book ,on duty Leary no complaints pocket training trainer all in order class . Appointment class position shift ,duty :

Access book registration time ,in time out registration attandance ,class 8h ,/ Log Learner name |I'd |Time in out | sign

Clock log activities learning /time table Pin point ..azmat severity impact financial probably risk assessment, Print in ,print out time.

- time complain log activities class course. .

-complain,I'd number complain irregularity failure material case complain sick , report time class time table break transcript assessment b

-complain disciplinary hearing b conduct nQMS quality management system.

- complain incidence house ,break fine escape , Time incidence inspect ,time damage failure class :
- complain copyright : pliagiarism copyright missing bfire script class dismissal b.
- school time table break staff 10h ocloc reason lunch time ,break staff .
- worshop fire reason short circuit lab class assessment time report communication hearing conflic resolve private investigator spas member visited ,class complain class statement certificate complain back log certificate missing .

-wire exam missing print reprint .

- complain ,saps id number ,name officer warranty ,visited evidence CVS , academic class found break time table ,strike complain b,
- compus reason CVS policy school parental meeting safety policy schot visited report secretary ,kekeletso fund missing ,saps , docket administration .
- report meeting agenda coaching meeting report parental CVS policy officer report parental guard Academy transcript
- meeting report reseach investigation academic result result reseach qcto results reseach dhet ,topics investigation complain case study , method reseach fund lost investigation.
- meeting conflic resolve crime irregularite research methode investigation case studies transcript result close years learner studies council e work discovery lost.

-financial reward meeting requirements registration academic consumer,complain . -meetinge cois ,uif defense regulation case study offence information system docket admnise research. -complain transcript refund

- reasons for crime enforcement low was recorded no register schor reason for irregularite secretaire refund case stu transcript policy Qcto noted ,dhet , investigation crime rest. Electrical non accreditation system financial crime damage , property lost key lock learner address physical , -protocol Odense court consumer address proof news school,

_post brigade academic link ,clust police station commander ,and security safety community ,commended link. Apologies school system no longer work or operationel private schools academic institutions policy deal ,24h,/24 permenent to research conduct and resolved docket case study copyright pliagiarism ,time table irregularity missing fire script school project deployment unity student internal and external assessment circulum refund lost recovery , incidence accident failure note discharge government systeme ., permenent meeting parade order system warranty private court and public court office. Training trainer process facilitator moderator,value Poe s evidence , Portofilio learner.

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- report make panel rebuilding construction , panel wiring Draw ,exampt Fundamental introduction , theory lecture no working in the industry it was in school college industry energy meter conditions.. -report reason crime the lecture senior trade no trainer generator ,power training panel wiring outcome and introduction wiring system ,wiring fundamental,wiring process , wiring project ,design way and component. In transcript sheet was not marking exampt draw sheet construction electric career electrician I'd saqa , take electrical trade theory module wiring ways premise.. industrial electronics wiring welding plumbing ,electrical wiringexamp tools hand safety to safety 1, only refund switch wire electrotech electrotechnology symbols commission EIC ,code in dtic industries and society development skills ,work account industrial no development and low relate to manufacture to labour court skill development ,after drawing architecture the revise refund money resale draw sheet value assessment financial bank stamp ,and rebuild redraw in construction plant interpretation metal landscape..the lowyer security safety policy accountability was non compliance only dtic accountability works place. Report.

Report , incidence date time close tendered CDs central supplies bid jhb ,

Report incidence dhet ,entry number isita .report incidence

Reference No.: INC000025277051 Summary: Request assistance from Dept of Higher Education and Training

The National Qualifications Framework (NQF) Act 67 of 2008 mandates SAQA to provide a foreign qualifications evaluation and advisory service, which it does in accordance with the Policy and Criteria for Evaluating Foreign Qualifications within the South African NQF, as amended (March 2017). Section 29(a) of the Policy and Criteria stipulates the requirements that a foreign awarding institution must meet for its qualifications to be recognized Case 2403110060003192 TrackingID#2403110060003192 tatistic report : carmine academic excel, guard repor number attendance ,number complain, number probability, investigation ruling statistic point pin guard brigade fault find guard move frequency period , ecartype , guard posting faculty name time occurrence guard action take time , complain time hour statistic investigation conduct affidavit , transcript date time homework , docket documentation time houre entry exhibition course, investigation histogram equation quadratic, plot math curriculum time came outcome , investigation event action going , occurrence,, framework regulation time gong frame work pont action take , station, equation move site development system close low remark , result outcome event investigation event visual studio deployment team time show coordination x, y map show,, graphical, name bridge adess brigade complain poin equation coordinate matrice line colone complain , histogramme variance (x,y) ,

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BRIGADE
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ACADEMIC
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o Labels

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1. Kananga5
2. engineering tshingombe data base
3. Activity • All • Push events • Merge events • Issue events • Comments • Wiki • Designs • Team 2 minutes ago

Kananga5 @Kananga5 Opened merge request !1 "Draft: Update .gitlab-ci.yml..." 4 minutes ago

Kananga5 @Kananga5 Pushed new branch mainj 6 minutes ago

Kananga5 @Kananga5 Pushed to branch main • 03e26dba · https://gitlab.com/Kananga5/engineering-tshingombe-data-base/-/rele... 30 minutes ago

Kananga5 @Kananga5 Opened issue #2 "enginering lettr experimental theory practical" 1 month ago

Kananga5 @Kananga5 Closed incident #1 "engineering" 1 month ago

Kananga5 @Kananga5 Commented on issue #1 "engineering" tshingombe fiston tshingombefiston@gmail.com 1 month ago

Kananga5 @Kananga5 Opened incident #1 "engineering" 1 month ago

Kananga5 @Kananga5 Opened milestone %engineering 1 month ago

Kananga5 @Kananga5 Pushed to branch main • 1a4e4cc3 · Update .gitlab-ci.yml file 1 month ago

Kananga5 @Kananga5 Pushed to branch main • 339781ea · Add LICENSE235955 1 month ago

Kananga5 @Kananga5 Pushed new branch main 1 month ago

Kananga5 @Kananga5 Created project Kananga5 / engineering tshingombe data base Primary navigation Homepage Create new... Kananga5 user's menu 1 2 3 Search or go to... Project • E engineering tshingombe data base

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1. Kananga5
2. engineering tshingombe data base
3. Repository Analytics Repository Analytics Programming languages used in this repository Measured in bytes of code. Excludes generated and vendored code. PercentageUsed programming language Code coverage statistics for main Mar 26 - Jun 24 Empty code coverage data It seems that there is currently no available data for code coverage Bi-weekly code coverage020406080100 data Commit statistics for main May 09 - Jun 24 Excluding merge commits. Limited to 2,000 commits. main • engineering-tshingombe-data-base • Total: 4 commits • Average per day: 0.1 commits • Authors: 1 Commits per day of month No. of commitsDay of month0500m11.522.5313579111315171921232527293 1 Commits per weekday No. of commitsWeekday0500m11.522.53SundayTuesdayThursdaySaturday Commits per day hour (UTC) No. of commitsHour (UTC)0123401234567891011121314151617181920212223 Primary navigation Homepage Create new... Kananga5 user's menu 1 2 3 Search or go to... Project • E engineering tshingombe data base

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o Pipeline editor

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o Artifacts

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1. Kananga5
2. engineering tshingombe data base
3. Pipelines • All51 • Finished • Branches • Tags Clear runner cachesCI lintRun pipeline

Show Pipeline ID Status Pipeline Created by Stages Failed 6 minutes ago Update .gitlab-ci.yml filehttps:j//gitlab.com/Kananga5/engineering-tshingombe-data-base/-/releases/new #1345295415 1

b58362cb

latest yaml invalid error merge request Download artifacts Failed 8 minutes ago Update .gitlab-ci.yml filehttps:j//gitlab.com/Kananga5/engineering-tshingombe-data-base/-/releases/new #1345292896 mainj

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latest yaml invalid error Download artifacts Failed 00:00:05 9 minutes ago https://gitlab.com/Kananga5/engineering-tshingombe-data-base/-/releases/new #1345291162 main

03e26dba

latest Download artifacts Failed 00:01:54 1 hour ago Update .gitlab-ci.yml file #1345011059 main

1a4e4cc3

scheduled Download artifacts Failed 00:01:54 1 day ago Update .gitlab-ci.yml file #1344150126 main

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1a4e4cc3

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tshingombefiston0369

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Settings

/ Billing

Account manager for Tshingombe Tshitadi • • •

Organization Settings tshingombefiston0369

General Overview Projects Users Billing Global notifications Usage Extensions Microsoft Entra

Security Security overview Policies Permissions

Boards Process

Pipelines Agent pools Settings Deployment pools Parallel jobs OAuth configurations

Repos Repositories

Artifacts Storage

Billing Billing has not been set up for this organization. Access will be available up to free tier limits. Set up billing Pipelines for private projects Free Paid parallel jobs

```
MS Hosted CI/CD 1800 minutes    0
Self-Hosted CI/CD       1       0
```

Visit parallel jobs for full details on free pipelines and public concurrency Boards, Repos and Test Plans Free

```
Basic users     5
Basic + Test Plans      Trial ended June 15, 2024
```

```
Settings        Access level
```

```
Default access level for new users
```

Stakeholder

```
Advanced Security       Used
```

```
Unique active committers        0
```

Advanced Security is billed based on the number of unique active committers in repositories. Active committers are users that have committed to an Advanced-Security-enabled repository in the last 90 days. Learn more Resources Free Used Usage limit

```
Artifacts       2 GiB*  Less than 1 GiB Up to 2 GiB free
```

*Artifacts now bills for packages-only. For other updates, please see https://aka.ms/artbilling.

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1. 1 Automation
2. 2 Demo Builds
3. 3 Select Framework
4. 4 Configure your Test 75% Completed For any help and assistance, Please talk to our Automation Experts to help with your integration Chat Now View Docs Java Sample Project Setup Setup your credentials Configure your capabilities Add to script View Test Results Setup CI

Chat Now View Docs Java Sample Project Setup Setup your credentials Configure your capabilities Add to script View Test Results Setup CI / CD

Explore Samples

Sample Project Setup Please run the following command in the terminal git clone https://github.com/LambdaTest/java-selenium-sample.git cd java-selenium-sample Setup your credentials Please run the following command in the terminal to setup your credentials in .env Linux/MacOs Windows export LT_USERNAME=tshingombefiston export LT_ACCESS_KEY=VVhB5scPf5WvE8DVDidAVZfsDnJqmsVWD063dipjpRqBFWCeoO Configure Your Capabilities Build Settings Test Configuration Smart UI Configure Your Capabilities Browser / Version Chrome / 125

- Configure Advanced Capabilities Build Settings Build Name

Automation Project Name

- Advanced Build Configuration Test Configuration Test Name

Test Tags

Use setting Screenshot capture on every command Use setting Record video Use setting Local / Tunnel Console Warnings Use setting Network Simulate Network Choose throttling option Geolocation Adelaide(Australia) Timezone Africa/Johannesburg You can use UTC timezone as well e.g. UTC-03:00 Smart UI Smart UI Project Name

Java Capabilities 1ChromeOptions browserOptions = new ChromeOptions(); 2browserOptions.setPlatformName("Windows 10"); 3browserOptions.setBrowserVersion("125"); 4HashMap<String, Object> ltOptions = new HashMap<String, Object>(); 5ltOptions.put("username", "tshingombefiston"); 6ltOptions.put("accessKey", "VVhB5scPf5WvE8DVDidAVZfsDnJqmsVWD063dipjpRqBFWCeoO"); 7ltOptions.put("geoLocation", "AU/AL"); 8ltOptions.put("visual", true); 9ltOptions.put("video", true); 10ltOptions.put("timezone", "Johannesburg"); 11ltOptions.put("build", "tshingombe"); 12ltOptions.put("project", "Untitledengineering tshingombe"); 13ltOptions.put("smartUI.project", "thsinengin"); 14ltOptions.put("name", "tshingombe"); 15ltOptions.put("tunnel", true); 16ltOptions.put("console", "warn"); 17ltOptions.put("selenium_version", "4.0.0"); 18ltOptions.put("w3c", true); 19browserOptions.setCapability("LT:Options", ltOptions); Add To Script Go to java-selenium-sample/src/test/com/lambdatest/BasicAuthentication.java to configure your capabilities Copy Capabilities Steps to Execute the tests Please run the following command in the terminal mvn clean install exec:java -Dexec.mainClass="com.lambdatest.BasicAuthentication" -Dexec.classpathScope=test -e View your Test Results Check once you are executed all commands to LambdaTest Hub Did not find any tests run on the platform. Try Again If still errors occurs, Talk to Automation Expert View Docs Try GitHub Sample 3 Tests found Primary navigation Homepage Create new... Kananga5 user's menu 1 2 2 Search or go to... Project • E engineering tshingombe data base

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o Feature flags

o Package Registry

o Container Registry

o Model registry

o Pages

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1. Kananga5
2. engineering tshingombe data base
3.
4. Container Registry Container Registry Cleanup is not scheduled.

Updated

There are no container images stored for this project With the Container Registry, every project can have its own space to store its Docker images. More Information CLI Commands If you are not already logged in, you need to authenticate to the Container Registry by using your GitLab username and password. If you have Two-Factor Authentication enabled, use a Personal Access Token instead of a password.

You can add an image to this registry with the following commands:

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BetaSend feedback Block or Report Popular repositories AzurePipelines doesn't have any public repositories yet. 0 contributions in the last year Contribution Graph Day of Week JulyJul AugustAug SeptemberSep OctoberOct NovemberNov DecemberDec JanuaryJan FebruaryFeb MarchMar AprilApr MayMay JuneJun SundaySun MondayMon TuesdayTue WednesdayWed ThursdayThu FridayFri SaturdaySat Learn how we count contributions Less No contributions. Low contributions. Medium-low contributions. Medium-high contributions. High contributions. More Contribution activity June 2024 AzurePipelines has no activity yet for this period. May 2024 AzurePipelines had no activity during this period. Show more activity Seeing something unexpected? Take a look at the GitHub profile guide. • 2024 • 2023 • 2022 • 2021 • 2020 • 2019 • 2018 Footer © 2024 GitHub, Inc. Footer navigation • Terms • Privacy • Security • Status • Docs • Contact • Manage cookies • Do not share my personal information

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MyDetails

_____Employment History

Never been Employed Before

Click on the dropdown menu to Edit Employment History:

Previous Employment Rank : Employed From:

Company: Employed To:

Position: Period:

Salary Range:

Achievements: Summarise Outputs (max of 250 characters) Reason For Leaving:

Company Position Salary Range Outputs Archievements Start Date End Date Employment Rank Reason For Leaving st peace college / career gov engineering R 950 000.00 - R 1 100 000.00 [ZendTo] You are trying to drop off some files Inbox ZendTo 9:04 AM (40 minutes ago) to me ZendTo This is an automated message sent to you by the ZendTo service. Name: tshingombe tshitadi Organization: engineering electrical tshingombe / st peace college Email: tshingombefiston@gmail.com You have asked us to send you this message so that you can drop-off some files for someone. IGNORE THIS MESSAGE IF YOU WERE NOT IMMEDIATELY EXPECTING IT! Otherwise, continue the process by clicking the following link (or copying and pasting it into your web browser): https://zendto.eskom.co.za/dropoff?auth=3489d0248d216e616bf08a6c09975f2e certificate 2024/01/15 12:00:00 AM 1 St peace college Panel wiring electricK R 0 - R 100 000.00 Panel wiring electrical, design distribution board outlet socket,installation dol motor transformer ,test electrician ,skill development sector ,, Certifate award panel electrical wiring Issue skill ,level 2023/10/25 12:00:00 AM 2023/10/27 12:00:00 AM 2 Close panel wiring electrical tendered st peace collge /city power cv student learner R 950 000.00 - R 1 100 000.00 Portofolio career research college engneering carerjoin gov Tshingombe tshitadi fiston 2023 department of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programme, exposition science -2.programme research development support : St peace college lecture and learner development under planning. Department high Education vs saqa vs qcto,vs seta research resolved time table examination Assessment police , Portfolio documents systems integrity police academic, -2.1. purpose: innovation practical and theoretical. science and technology science national trade factor outcome time table trading examination and qualifition framework national diploma n engineering and council trade sector authority , innovation system outcomes empower system subject entry phase learning and lecture teach science exhibition generation technology Assessment police ,and Engineering assessment trade machine and trade control system process project system control evaluation system 2.1.2 knowledge: innovation practical and theoretical trade technology electrical engineering Electrotechnolgy empower value are recreation orientation maximum, value tax , return studies and Examine electro technology engineering time table assessment Completed research laniaries system technology value entry lecture exam nated vs. saqa vs qcto linearism system electro technology power fundamental job duty job maximum, job value minimum trade operational, task minim component system, -Job duty cycle system value : learner lecture framework qualifition and occupation trade job value salary resource human maximum fiscality minimum technology components system : sciences natural system investigation design minimum agreement value job trade module,task minimum ,task minimum service require trading sectors and maximum sectoral electrotechnology trading components Value financial tax system: 2.2.3: strategies: strategies phasing module tasking curriculum system implantation levels grading lecture objectivity: The trading lecture and learning system engineering science electrical subject and technology electrical ,electro technology ,education technology System outcome , trading education technology systems power factor demand system education , efficiency system assignment power objectivity module task , maximize inventories psychopedagogie metric system month week of observations learner form test assessment assignment control tpm maintence meeting product control technology goal . -1.2.3.4: development humain generation: system teaches sector organisations technology rate value maximum rate demand factor admnise value ask required report system value. -1.2.5.component: trading lecture used company manufacture relate system Industrial Education system intelligence management system information ,education computing control system switch and material support command disposition component manufacturers Numerical time table framework regulatory Education trade relate handbook guideline information and orientation integrative system component handbook relate maintenance update , upgrade system -1.2.6: basic science infrastructure: implantation of research innovation mission equipment College equipment framework theory practical lab workshop workplace implantation department gov system ,more Inovation,tax incentives,, Meeting request - National energie regulatory of South Africa mandatory electricity piped , invitation me minister tribunal,, Meeting electrical conformance board design installer regulatority Cox competition b Meeting salt, dmrg stick, sale revenue power plant fuel used national treasure sars department

design installer regulatority Cox competition b Meeting salt .dmrg stick ,sale revenue power plant fuel used national treasure sars department of energy mandatory ensure private sector participr in power generation , Meet national skill fund,, national research fund ,, Visa permit tshingombe fiston Wed, Sep 20, 5:31 PM (10 days ago) to TSHINGOMBEKB, tshingombe, DSI-Notification partment of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programe, exposition science -2.programme research development support : St peace college lecture and learner development under planing. Department high Education vs saqa vs qcto,vs seta research resolved time table examination Assessment police , Portofilio documents systeme integrity police academic, -2.1. purpose : inovation practical and theoretical. science and technology science national trade factor outcome time table trading examination and qualifition framework national diploma n engineering and council trade sector authority , inovation system outcomes empower system subject entry phase learning and lecture teach science exhibition generation technology Assessment police ,and Engineering assessment trade machine and trade control system process project system controle evaluation system 2.1.2 knowledge: inovation practical and theoretical trade technology electrical engineering Electrotechnolgy empower value are recreation orientation maximum,value tax , return studies and Examin electrotechnology engineering time table assessment Completed research linearise system technology value entry lecture exam nated vs saqa vs qcto linearise system electrotechnology power fundamental job duty job maximum,job value minimum trade operational,task minim component system, -Job duty cycle system value : learner lecture framework qualifition and occupation trade job value salary resource humain maximum fiscality minimum technology components system : sciences natural system investigation design minimum agreement value job trade module,task minimum ,task minimum service require trading sectors and maximum sectoral electrotechnology trading components Value financial tax system: 2.2.3: strategies: strategies phasing module tasking circulum system implentation levels grading lecture objectivity: The trading lecture and learning system engineering science electrical subject and technology electrical ,electrotechnology ,education technology System outcom , trading education technology systems power factor demand system education , efficiency systeme assignment power objectivity module task , maximize inventories psychopedagogie metric system month week of observations learner form test assessment assignment control tpm maintence meeting product control technology goal . -1.2.3.4: development humain generation : system teach sector organisations technology rate value maximum rate demand factor admnise value ask required report system value. -1.2.5.component: trading lecture used campagny manufacture relate system Industrial Education system intelligence management system information ,education computing control system switch and material support command disposition component manufacturers Numerical time table framework regulatority Education trade relate handbook guideline information and orientation integrative system component handbook relate maintenance update , upgrade system -1.2.6: basic scieny infractuture: implentation of research inovation mission equipment College equipment framework theory practical lab workshop workplace implentation department gov system ,more Inovation,tax incentives,, Meeting request -National energie regulatority of South Africa mandatory electricity piped , invitation me minister tribunal,, Meeting electrical conformance board design installer regulatority Cox competition b Meeting salt .dmrg stick ,sale revenue npower plant fuel used national treasure sars department of energy mandatory ensure private sector participr in power generation , Meet national skill fund,, national research fund ,, Visa permit tshingombe fiston Thu, Sep 21, 4:25 PM (9 days ago) to csd, DSI-Notification One attachment • Scanned by Gmail tshingombe fiston Wed, Sep 27, 5:21 PM (3 days ago) to TSHINGOMBEKB, tshingombe, DSI-Notification Technology design engineering,systems engineering, tshingombe fiston Wed, Sep 27, 5:22 PM (3 days ago) to tshitaditshingombe, DSI-Notification, TSHINGOMBEKB, tshingombe Mail Delivery Subsystem Wed, Sep 27, 5:23 PM (3 days ago) Address not found Your message wasn't delivered to tshitaditshingombe@yahoo.fr because the address couldn't be found, or is unable to receive mail. The response tshingombe fiston Wed, Sep 27, 8:55 PM (3 days ago) to DSI-Notification, TSHINGOMBEKB, tshingombe 1..project -High school theory practice week grade Theory labo work shop high school , - university theory practice workshop lab - instituts case studies research -college workshop workplace theory compagny workshop experience career : projection design analyse -Project Principe design -project diagram laballed schematic -Projects diagrams power circuit -Project commander control way -Project experience measure test .diagramme algorigramme logigrame organigrame ,diagrammed sequential , Concept design planogramme, algorithm . Graphcetp - purpose engineering, 1.initial sequence implentation 1. purpose of plan. Dhet yes, key switch contact -aim of plan yes, -objectivity plan yes - key delivery area 2.implementation monitoring of teaching --purpose yes - trade test QCTO license yes ,let /lep 3purpose. -4 purpose and evaluation saqa log - 5where appropriate , undertake manufacture maintence panel yes -6.1 Value Assessment saqa vs NC's infractuture. 7 7.purpose dhet education career bridge stabi base phase job paychomoty yes -8 dhet ,vs sasseta accreditation Assessment mil STD , safety training merseta required gasst . -8.2 9. purpose manufacture relate theory practical componey equipment trade ton max chain load diameter trade code objy credit theory vs practice test manufacture yes, -10.purpose dhet national electronics fundamental engineering level and License trade engineering. Compare low test methode notion Hopkins -Purpose wiring electric wire way premise protection line fire -10.2 purpose engineering science module completed algebraic linearing foindamental system process fabric y yes, -engineering science theory fundamental research step y learner plan lecture plan mapping investigation Analyse, 11.pupose instrument measure trade engineering e measure control lab , -1.2 dhet vs saqa practical work experience lab workshop workplace Industrial trade purpose machine manufacturers.. -13. Dhet ncv nated lect vs saqa subject electrical principle practice , nqf level, 14.puroae dhet et vs seta sasseta skill programme management electronics,securtgradd assess threat for installation , 15.purose student information system,stui managy system revolutionized, and steing wit,cost effey interactive,collect. tshingombe fiston Wed, Sep 27, 9:13 PM (3 days ago) to DSI-Notification, TSHINGOMBEKB, tshingombe - diagram logigram algorigramme -1intialisation : start -implementation circulum knowledge circulum policy engineering planing product improvement contractual agreement e registerer and consultant e electrique Computer. Yes 2.purpose ask factor career outcome transition phase learner phase exhibition phases teach beginning. Yes 3.method material and equipment scientific guidelines assess formation Summative rubric tools assessment learner and teacher time e. Yes 4.result nantecht and minint what is technology wath are day of mining how is nanotechnology energy. Yes 4.conclusion : ent discovery Computer training t and support services to existing or prospective club safe. 5 . 1.research plan template yes, 1.1 scientific investigation project experimental. Yes 1.2 engineering type project and computer science.yes -provisionaL project implementation framework policy college and school Engineering circular assessment police , Education teach and technology subject ,subject , government municiyteam training work graduation Engineering time St peace project,expos categories.. -method material . - procedure each operationel preliminary synchtins inspect. tshingombe fiston Wed, Sep 27, 11:05 PM (3 days ago) to DSI-Notification, TSHINGOMBEKB, tshingombe -Project, CVS, resume Logigramme -1. engineering electrical implentation time table to job time experience trade . yes. -education study program St peace college.yes -work expert: title position city power training / St peace college training 02/2923. Engineering electrical visited work training experiemental tasks , - award degree diploma ,saqa award panel wiring electrical , yes -skill panel wiring electrical , yes -personal projects engineering electrical visited / St peace college city power ,04/2023 ,award certificate diplomat saqa engineering.yes -organizatiom ,St peace city studies statement yes ,12 / 2022 present engineering subject n1,n2,n3,n4,n5,n6, ,n ,, 1.1summary . -1.1scope : research implentation framework study theory practy Engineering study time table Assessment allocatt implentation framework regulatority in government experimt student case time that allocation research, -Abstral students

engineering design analysis trade ask knowledge city power municipality power electrique metering .. -tvet CV instruction icass planning internal assessment Assessment plan subject, student analyse grid lectuy file , asssessment test practical Assessment,rubrt, yes. 1. Research requirements job study content. Research job implentation time table mean government instant visited visited labour department visited s energy council engineering. Yes .-question ask city power years theoretical practical city power and energy mineral department college, research job basic ady eligibility CVS selection crity factor training visiby appointment dicuy walleti Portofolio education college working work eligibility.. yes - 1.2 research engineering role and responsibilities research team ideal realities interested research and create new technology. Yes -1.3 duty of area search engineering years depending type of position. -engineering overseas staff position advance seniors. Yes 4.electrical ent do design and building Electrical equipment advance technology outcom including.yes 5.assessment guidelines orientation vocational Engineering ,conductor learner Engineering learner except emploie. 6. Requirements Assessment police and orientation learner guidelines vocational training engineering electrical, 7.requirement power meter technical Metering, calibration laboraisa s class 0,2, single phase certifat accreditation IEC ,@70 SaaS la capacity to calibrating large voluy electrical meter provide value meter .. yes 7.2.tesring desktop applicat police infort managet systt society low management criminals record infot Manuel improve a desk top application record jeet for police St is securite and functt safeware system department. Yes 7.research integrity framework college project and university School topic policy assy orientation Assessment research outcom teach lecture. Yes 8.tender value career totat education trade consultant bodies insuttrade test exam nated duty n 1-n6 marks time table theory. 1.scope research 1.2. 1.3 purpose overview in developing compt tendered city power supplies engineering electrical Cass study, -1.4 requirements training time table. 1.5 ask answers theory practical visited plant operations experiemental asssessor in workplace labor questionaire asked analyse subject working in developing trading company responsable , -approlriate sole Consol class cicate support trading training.. 1.6 ask quesy power to integrate sector training was satisfactory in gate information for training city power metering customer need to trade customer technology module trade t. 1.7. step need cost customer power factor theory compagny supplies need tax consumer supplies.. @.8 operationel support rendered. -to compliance labor electriy power factor test inspection compliance time table relation test installation electrical metering single phasst test trade certificate. 2.1.14.operational preliminary case study visited power city operationel requirements. 2.1.4.1 permit allowed minimum job career student permit study BT's training allocation minimum.. 21.4.2 , questionaire fact ask student in plant dangerous. 2.1 4.3 ask factor permit .. 2.1.4.2 student city power and training to delivery bill information system integration. 2 .14.6. Student city power and training to delivery bill information system.financial implentation in system exam to more gov , development social.. 2.1.4.6 metering moduttrade theory electrotech resembles instrument measure informat management syst framework commut skill mathematics Engineering. 3.1..4 , student homework, 1.4.6.1 faculty allowed system engineering lab workshop 1.14.6.2 to ,1.1.4.6 metering implentation time table module gov system.. 9.procide contextual information city power and St peace student Engineering electrical research. 9.8. compared resultat obtained statement visited investigation metering peace college time t learner. ,4.2. requirements appointment plant engineering electrical consultant provision professional. - specifical IST application. 2.1 implentation frame work regulatority 5.2 case study circular visited compared inovation. 5.2.1 module inducty safety join soldering fauy find contrase. 6.engineering. N diplomat dtin. 9.1.9.2 feedback guyser control meter readlig schedule tarrif info prepaid vendit type fault logging load shedding Libra tarrif monthly metering. 11.metering errt connet prepaid over load power accident appliances metering consumer procedure claim fault crime logged call off metering. 12. Generation measures network transmission syt time table engineering electrical, physics ,chemical eny,science engineering, drawing Engineering,apply to Cary career outcot skills to make a freelancer arrangements power city training visited engineering estimate resolution,add system explat resonement. Yes 13.2. engu system modelit n asstfor entpolice St peace was concert lectt introdu topics guide visited city power key learner appropriate, yes 14.22. Engineering electrical specifications of machinery equipment motor machinery generation battery.cerufucariin cycle durat yes.. 14.28 .compare training assessment and assugu electrique implentation time table workplace workshop academic in trade social power design factor training..yes 15.reqyieed manager class how to orgat. 15.requiremenr implentation and stabilization to training visited training Education exam training and labour inspection work inspection police school Industrial city .. - n diplot saqa understaking numerical, 40.1 practical school St peace college workplace workclass class at peace practical.orientation . 50.1 built making , Subject module overview colleges lab workshop ttheory police ..city power tshingombe fiston Thu, Sep 28, 4:28 PM (2 days ago) to DSI-Notification, TSHINGOMBEKB, tshingombe 1 .CVS Title government and Education job Engineering college. 1.conte t engineering electrical career project Project officer outcom e legislation government engineering gov city .yes 2.2 abstract job work career category job skills.yes 3. Entry Engineering electrical trade infractuture implentation support. Yes 4. Purpose asssessor .vyes 4.1 case study how make calculation for a distribution substation. Yes - 5.requirement substation , 5 purpose and required , advance basic. Yes 6. Requirements power station and central system appliances TV reliable , Yes 8.requirement Dimensioning workplace. Yes 8.2 fonctionalite principal . Note cacul office , bureau studi ,sabs ,ECB,realii calcul test Yes 9.reauired domain application distribution network . Yes 10.of electromagnetic induction to solve problem. Yes 11required energy dimensioning, Yes 15.1 rate discharge required need adjusting energy determine secondt control power requirements. Yes 16. Required functions function. Yes 17. Required report current measurement. 18.required energitcal energy and electro energy mass government weight Gass products. Yes 19.1 ..circuit diagram of analyse energy meter , ATM term standard automate teller machine. 20.require case diagrams for arm systeme. Yes 2.1 required ent Electrical machinery motory motor and generation Nomenclature assembly,step Yes 2.2 required calculation of induction in the teath of stator. - required ,an experiment in in transformer rewinding an winding instructable.step 2.5 requirements engineering electrical work department orientation wastage life assess life cycle analyse is methology association commercial products or services for instance case of manufacture product impact are Assessment form row material. Recycling final. - seta form assessor saqa - city power structure organisation inovation. -Strong cities network , - Education and for innovation power of digital technologies, -30.. required design analysis Engineering science energy, engineering chemistry, engineering physics biophysics science electrical energy.. 30.1 robot dynamic kinematics and control calcule Dimensioning nomenclature operator kinematics. 30.2 requires Industrial research means planned research critel innovative grow ,equity components compagny appliances sti stick reports. 32.rewuire total energy systems required load current at point engineering electrical faculty tshingombe fiston Thu, Sep 28, 5:03 PM (2 days ago) -Requirements flow down from level1.system design processes1.1 requirements definition process ,1.1.1stskehold expectation definition yes1.1.3technical solution tshingombe fiston Fri, Sep 29, 7:19 PM (14 hours ago) to DSI-Notification, TSHINGOMBEKB, tshingombe -Algorigramme, logigram -Key lock,, -Equation key equation lock comparable logic K1.1 x +k.2.1+kn ..= k implentation K1.1x+k.2.1+kn..=k.implementation _____ Add. Method value : Substitute value: key Compare value : Step operator .. _____ Way key switch K.1. tshingombe fiston Fri, Sep 29, 9:14 PM (12 hours ago) to TSHINGOMBEKB, tshingombe, DSI-Notification Outcome, education technology technology electrique ,electrotechnology EIC EIC : electrotechnology : electrical international commissioner rules , Commissioner electrical international,commission energy,,commission ligthning,, system international physic ,chemical ,, Construction electric association ,information rules Labels, Power empower : fundamental system, process implentation phase operationel step task project: Schematic diagram: principal game Technologie ,supplies power purpose power : rules attorney: machine system control process Project fabric .. power commissioning code standard Value

,supplies power purpose power . rules attorney. machine system control process Project fabric. - power commissioning code standard value nominal operationel work : -value minimal operationel work labour: -value value cut operationel , Value selected , choice basic advanced purpose diagram design Key lock contacting value outcom technologie are Cree. -principle schematic: schedule Orientation projection flow share line manager system process purpose horizontal vertical team line flow -Purpose purpose : 1.1,,1.2,,1.3,,1 5.. operationel task ,logic diagram logigram , organigrame organisation orientation planing supervisor - design organigrame: Way key switch organisation supervisor planing way , 2 way ,3,way block Mono schedule schematic,4 way switch suplie power recall delay relay o'clock dimer -Organigrame schematic blocks,convert information : ,,Organigrame board metering , logigram , algorigramme.bod distribution board , distribution system design . _____ - equation logic : state logic ,0or 1, voltage 220,380 F1=0, F2=0,F3=0, circuit breaker MCB MCB1=0,MCB2=0,MCB=3, Line 1,2,3 state = 0, F1+F2+F3, ,metering kWh=0 , kvarh=0,KVA =o cos meter= 0 Circuit breaker ,over load rcdbo =0, Db box system db=0, operationel technologie, Equation logic Db= F1.+MCB+kvar+kwh Power supply, Db = lights+ outlet socket+guyzer+ Sw1=1 light = 1, sw2=1,sw3=1,SW 6, ,SW 5, _____ - organisation dol ,reverse. Load. Km1= F1+so+(S1+km1). Motor Km2=F2+s0(S2+km2).. _____ K1m = F1+so(S1+km1).km2 K2m=f2+so(S2+km2).km1 _____ K start= F1+so(S1+km1).k d K delta=F2+so(S1+km2).ks _____ On line generator ,,transformer transmitters Kgenerator =F1+so(S1+kg1).kg 2 Kgenerator=F2+so(s2+kg2).kg.2 Transformer = F,=,1,(Q+break+Q).(Q+break+Q)+transfo + Q+Brak+Q+ _____ -Algorigramme: operationel system Initial f1.start ..F1=1 yes , or not initialisation,F2=1,yes ,or egual =o initial Initiation , f 3=1,yes or equal=0 initial , .,SW = 1:,yes ,,km = 1, yes,kg=1 yes step or reininitialisatiin . Db box = ,1 ,,D's=,1 activation atstem End procedure ,, _____ Logigramme algebraic boolen , Coventer Binaire 2. 0,1,decimal base 10, hexadecimal 16, Input / out put logic byt Sw1=0,sw2=0,sw3=0,SW=0/ 0000, Base 10,,base 16 S1=0,S2=0,S3=0, S4=0,=0/0000 Km=0,km=0,km=o,km=0,/0000 Kg=0,kg=0,km=0,Km=0/ 0000 _____ , Fortran CLS program,PLC 10.Print sw1 20.Print sw2 30.print sw3 40.print sw4 50 print S1, 60 print S2 70 print S3 80 print s4 90 print km 100 .print kg 110.print t Input ="sw1", sw2,sw3,sw4,Se Input = S1, S2,S4,S4,, Input = km, Input = kg If " sw1"= 1, I = Else Show String _____ Robotic research operationel Algo pin address value scater position _- - tshingombe fiston Fri, Sep 29, 11:40 PM (10 hours ago) to DSI-Notification, TSHINGOMBEKB, tshingombe _____ Analyse design ,analyse circuit. Sequence , circulum purpose - call key display sw1,sw2,sw3,sw4 -call and recall ,db ,Q - call and recall current sw1,sw2,sw4 - call way key + Call km,call kg ,call. -Module call and recall sw1 task ,call task ,sw2 ,call task sw1 required contact task sw1 = 0, sw1=0, Task km Call pression pressosta kp,call manosta ,call detector call,termomete kt Relay Current exp - Module calculator operationel, call task ,call , sw1 operationel logic add, substraction , multiplication,division task Module inverter ,module multiplex , Integration circuit module switch , Call pression under pressure, Call , module calcule step task ,S2,S2,s3s4,sequence pression ,selector Call pin address ,transistor thyristor comande task , Call module matrices ,Display module.. operationel system call recall task ,multi task multi use, mmono task, call windows,, operating system call motor lecture current disc tape magnetic electromagnetic memory card , reader card call ,sub system - e: Release resultat statement and finalize award diploma./irregularilarity case .re marker _____ tshingombe fiston Sat, Sep 23, 2023 at 10:06 AM To: TSHINGOMBEKB TSHITADI , centraloffice@qcto.org.za, secretarydrr@saqa.co.za, Qualification@qcto.org.za, Mahlangu.L@qcto.org.za, learnerenrolments@qcto.org.za, csd@treasury.gov.za, callcentre@dhet.gov, modiba.d@dhet.co.za, saqainfo@saqa.org.za, dfqeas@saqa.co.za, DGRegistry@treasury.gov.za, deregistrations@cipc.co.za, DSI-Notification On Thu, Jun 1, 2023 at 1:38 PM tshingombe fiston wrote: QCTO APPLICATION FORM FOR DEVELOPMENT, REVIEW, REALIGNMENT/ DE-ACTIVATION/ REPLACEMENT OF OCCUPATIONAL QUALIFICATIONS/PART QUALIFICATIONS/SKILLS PROGRAMMES IN LINE WITH THE OQSF POLICY (2021) OCCUPATIONAL QUALIFICATION TYPE (NOMENCLATURE) NB: Only Quality Partners (QP) may complete this form SECTION A:SPECIFY TYPE OF DEVELOPMENT REQUESTED Tick the applicable box in the table below: TYPE DEVELOP REVIEW REALIGN DE-ACTIVITATE REPLACE QUALIFICATION N engineering PART- QUALIFICATION n/engineerin SKILLS PROGRAMME engineering SECTION B: QUALIFICATION DETAILS B1. Occupation and/or specialisation that this Occupational Qualification relates to: QUALIFICATION TYPE OCCUPATION/SKILLS PROGRAMMETITLE OFO CODE (state if none related can be found) SPECIALISATION TITLE SETA CHAMBER SIC CODE 1. Panel waring 2.n engineerig electrical 3. 4. Link to access OFO: https://www.dhet.gov.za/Skills%20Development/Updated%20FINAL%20OFO%20VERSION%202021.xls Link to access SIC Codes: https://www.dhet.gov.za/SiteAssets/Publication%20of%20New%20Seta%20Landscape.pdf B2. Details of Qualification(s)/recorded Trades affected where applicable: QUALIFICATION ID/RECORDED TRADE ID QUALIFICATION TITLE/RECORDED TRADE TITLE LEVEL CREDITS QUALITY PARTNER (QP) Engineering electricl Lev,5/n4 n Panel wiring Lev2 B3. Learnerships registered against the above stated qualification/trade: LEARNERSHIP REGISTRATION NUMBER LEARNERSHIP TITLE NQF LEVEL Engineering electrical N4/lev5 B4. Does the intended occupational qualification relate to relevant economic drivers? For each area marked yes, provide evidence Referencecurrent source, with page number, where need was identified Tick YES or NO. 4.1 Listed in the Economic Reconstruction and Recovery Plan (ERRP)? Yes yes No Reference 4.2 National Development Plan Yes yes No Reference 4.3 New Growth Path Yes No Reference 4.4 Industrial Policy Action Plan Yes yes No Reference 4.5 Economic drivers in Strategic Infrastructure Projects (SIPs) Yes yes No Reference 4.6 Reconfiguration and Reconstruction of N4-N6 part qualifications Yes yes No Reference 4.7 DHET Scarce Skills List (List of Occupations in High Demand) Yes yes No Reference 4.8 Legacy/Historically OQSF Qualifications Yes yes No Reference 4.9 Other priorities Yes yes No Reference B.5 Provide a rationalefor occupation/specialisation (i.e. describe and explain need, benefit, typical learners) ... B.6 Specify regulatory bodies, professional bodies, associations,labour or employer organisations and/or other stakeholders that are involved/interested in this occupation: ... SECTION C:APPLICANT DETAILS Complete the table QUALITY PARTNER DETAILS NAME OF QUALITY PARTNER ...st peace college NAME AND SURNAME OF APPLICANT ...tshingombe tshitadi DESIGNATION OF APPLICANT ... EMAIL ADDRESS OF APPLICANT Tshingombekb@gmail.com... APPLICANT SIGNATURE ...tshgombe/// DATE ...01/06/2023 SECTION D:APPLICATION SUBMISSION Email completed and signed application form to: qualifications@qcto.org.za FINAL VERIFICATION REPORT TEMPLATE NB: This scoping report is to be compiled by the QP and is submitted to the QCTO within 10 working days after the Final VerificationMeeting. 1. QCTO approved application for which the Final Verification Meeting was conducted: OCCUPATION engineering OFO CODE en SPECIALISATION n 2. Final Verification Meeting details: DATE 11 VENUE 1 TIME n 3. Details of Qualification for which Final Verification is conducted: NO QUALIFICATION TYPE QUALIFICATION TITLE NQF LEVEL CREDITS 1. Trade theory electrical Trade electrical engineering N4/lev5 n 4. Details of Part-Qualification for which Final Verification is conducted: NO QUALIFICATION TYPE QUALIFICATION TITLE NQF LEVEL CREDITS 1. Trade theory /panel wiring Engineering n N5 n 2. 5. Details of Skills Programme for which Final Verification is conducted: NO QUALIFICATION TYPE QUALIFICATION TITLE NQF LEVEL CREDITS 1. Engineering electrical Engineeeeeeirn n N4/lev 5 n 2. Panel wiring electrica Trade theory Lev n 6. Analysis of stakeholders consulatedforFinal Verification: NO CLASSIFICATION NUMBER OF PARTICIPANTS WHO WERE INVITED TO THE MEETING NUMBER OF PARTICIPANTS WHO ATTENDED THE MEETING 1. WORKPLACE PRACTITIONER 4 4 2. PROFESSIONAL BODY/NON-STATUTORY BODY 4 4 3. REGULATORY/STATUTORY BODY 4 4 4. EMPLOYER ASSOCIATION 4 4 5. EMPLOYEE ASSOCIATION/LABOUR UNION 4 4 6. EDUCATION AND TRAINING PROVIDER (PUBLIC) 4 4 7. EDUCATION AND TRAINING PROVIDER (PRIVATE) 4 4 8. ASSESSMENT SPECIALIST (EXAMINER/

MODERATOR WITH EXPERIENCE) 4 4 9. CURRICULUM DEVELOPMENT SPECIALIST 4 4 10. TEACHING AND LEARNING SPECIALIST 4 4 11. COUNCIL ON HIGHER EDUCATION REPRESENTATIVE 4 4 12. HIGHER EDUCATIONINSTITUTION REPRESENTATIVE 4 4 13. OTHER 4 4 14. TOTAL 56 56 NB: Attach Final Verification Meeting Attendance Register in the QCTO prescribed format 7. Details of Subject Matter Expert who will facilitate the development of Qualification/Part Qualifications/Skills Programme: NAME SURNAME EMAIL ADDRESS CELL NUMBER TELEPHONE NUMBER tshingombe tshitadi tshingombekb@gmail.com Comments ... 8. Quality partner declaration: I, ...(Name and Surname - Quality Partner Representative), declare that the information provided above is an accurate reflection of the proceedings of the scoping meeting as detailed in this report. Signed on this ...02 day of 6...20...23 at ...jhb _____ learner engineeering electrical 2022/10/28 12:00:00 AM 2022/11/16 12:00:00 AM 4 no meeting rquiremnt Never been Employed Before Education Engineering electrical trade R 950 000.00 - R 1 100 000.00 Engineering electrical 2023/10/20 12:00:00 AM 2023/10/20 12:00:00 AM 6 Engineering electrical job close tendered

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Showing 28 Jobs Field Service Engineer - UPS 26849 May 29, 2024 No Longer Under Consideration Johannesburg, Gauteng, ZAF, 1619 Power Systems Engineering Specialist (Expert) 25412 May 19, 2024 No Longer Under Consideration Milton, Ontario, CAN, L9T 5C3 Manager Engineering Product Design Connected Solutions 25058 May 19, 2024 No Longer Under Consideration Santo Domingo, DOM Field Service Engineer - UPS 26105 May 19, 2024 No Longer Under Consideration Cape Town, ZAF, 7550 Service Centre Helpdesk Coordinator 20686 Mar 6, 2024 No Longer Under Consideration Johannesburg, Gauteng, ZAF, 1619 Field Services Engineer - UPS 20228 Mar 2, 2024 No Longer Under Consideration Durban, ZAF, 4017 Field Services Engineer - UPS 19852 Feb 10, 2024 No Longer Under Consideration Cape Town, ZAF, 7550 Quality Auditor, Training program, 3rd Shift 19275 Feb 9, 2024 Processed Rumford, Rhode Island, USA, 02916 Lead Power Systems Engineer 19197 Jan 31, 2024 No Longer Under Consideration El Paso, Texas, USA, 79912 Product Manager - Electrical Working Training & Remote Services 18926 Jan 31, 2024 No Longer Under Consideration Moon Township, Pennsylvania, USA, 15108 Finance Early Talent Leadership Development Program (m/w/d) 18647 Jan 31, 2024 No Longer Under Consideration Bonn, DEU, 53115 Finance Early Talent Leadership Development Program 18817 Jan 31, 2024 No Longer Under Consideration Budapest, HUN, 1123 Site Manager South Africa - Customer Projects 12131 Dec 16, 2023 No Longer Under Consideration Johannesburg, Gauteng, ZAF, 1619 Engineering Technician - Mechanical 13241 Dec 11, 2023 No Longer Under Consideration Wilsonville, Oregon, USA, 97070-8247 Lead Engineer Power Conversion 14106 Dec 10, 2023 No Longer Under Consideration Bonn, DEU, 53115 Senior Power Electronics HW Engineer 5488 Dec 10, 2023 No Longer Under Consideration Bonn, DEU, 53115 Mechanical Design Engineer - Electrical Vehicle (m/w/d) 14843 Dec 10, 2023 No Longer Under Consideration Bonn, DEU, 53115 Manager Engineering - Engineering Center (Eplan) ESS EMEA 12431 Dec 10, 2023 No Longer Under Consideration Hengelo, NLD, 7559 Senior Electrical Project Engineer 15841 Dec 5, 2023 Job Filled - Other Candidate Selected Dublin, IRL, 4 Applications Engineer 13964 Dec 5, 2023 No Longer Under Consideration Mascot, New South Wales, AUS, 2020 12

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Johannesburg, South Africa Location +27725298946 Phone Work Experience1

Engineering Jacobs Engineering Feb 2020 - Present enginerring electrical design analyse investigation component

Education1 UNIVERSITÉ De Kinshasa UNIKIN Certificate, Engineering Oct 2020 - Jan 2023 Study Program st peace college 10/2020 - Present, jhb r Courses engineering electrical

Awards1 Panel wiring electrical St peace college Mar 2024 Panel wiring award certificate. Outlet socket. db .

Patents1 Ccma laboure Mar 2024 Ccma labour

Publications1 Education technology Tshingombe Mar 2024 Education technologie trade electrical elementaire fundamental

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LiveChat support@livechatinc.com 1:55 PM (0 minutes ago)

to me

Chat transcript

Name: tshingombe

Contact number: 0725298946

E-mail: tshingombefiston@gmail.com

Gender Male

Are you a Student

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Salome Kutanda
Tue, 25 Jun 2024 12:47:51 SAST
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Hello. How may I help you? tshingombe 12:50

i need advice career development n diploma engineering electrical , back log isita certificate graduate , transcript record , applying to depatment career , student st peace college,, job experimental theoretical practical , career tshingombe archived the chat 12:52

tshingombe left the following comment: good day 12:53

tshingombe rated the chat as good 12:53

Was your case resolved during the chat? Yes

Did the Advisor discuss a follow-up plan with you? Yes

Conversation happened at: https://www.careerhelp.org.za/

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Incidence eaton employement cobs Engineering (Engineering) Career visited job to job Visited applie trade to trade ,, trade to cpd continue stage internership apprentiship report learner Visited apple training to training re development reform job experimental student outcome and internal service outcome exhibition internership pc6 [Pick the date] Portofolio career research college engneering carerjoin gov Tshingombe tshitadi fiston 2023 department of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programme, exposition science -2.programme research development support : St peace college lecture and learner development under planning. Department high Education vs saqa vs qcto,vs seta research resolved time table examination Assessment police , Portfolio documents systems integrity police academic, -2.1. purpose: innovation practical and theoretical. science and technology science national trade factor outcome time table trading examination and qualifition framework national diploma n engineering and council trade sector authority , innovation system outcomes empower system subject entry phase learning and lecture teach science exhibition generation technology Assessment police ,and Engineering assessment trade machine and trade control system process project system control evaluation system 2.1.2 knowledge: innovation practical and theoretical trade technology electrical engineering Electrotechnolgy empower value are recreation orientation maximum, value tax , return studies and Examine electro technology engineering time table assessment Completed research laniaries system technology value entry lecture exam nated vs. saqa vs qcto linearism system electro technology power fundamental job duty job maximum, job value minimum trade operational, task minim component system, -Job duty cycle system value : learner lecture framework qualifition and occupation trade job value salary resource human maximum fiscality minimum technology components system : sciences natural system investigation design minimum agreement value job trade module,task minimum ,task minimum service require trading sectors and maximum sectoral electrotechnology trading components Value financial tax system: 2.2.3: strategies: strategies phasing module tasking curriculum system implantation levels grading lecture objectivity: The trading lecture and learning system engineering science electrical subject and technology electrical ,electro technology ,education technology System outcome , trading education technology systems power factor demand system education , efficiency system assignment power objectivity module task , maximize inventories psychopedagogie metric system month week of observations learner form test assessment assignment control tpm maintence

meeting product control technology goal . -1.2.3.4: development humain generation: system teaches sector organisations technology rate value maximum rate demand factor admnise value ask required report system value. -1.2.5.component: trading lecture used company manufacture relate system Industrial Education system intelligence management system information ,education computing control system switch and material support command disposition component manufacturers Numerical time table framework regulatory Education trade relate handbook guideline information and orientation integrative system component handbook relate maintenance update , upgrade system -1.2.6: basic science infrastructure: implantation of research innovation mission equipment College equipment framework theory practical lab workshop workplace implantation department gov system ,more Inovation,tax incentives,, Meeting request -National energie regulatory of South Africa mandatory electricity piped , invitation me minister tribunal,, Meeting electrical conformance board design installer regulatority Cox competition b Meeting salt .dmrg stick ,sale revenue power plant fuel used national treasure sars department of energy mandatory ensure private sector participr in power generation , Meet national skill fund,, national research fund ,, Visa permit tshingombe fiston tshingombefiston@gmail.com Wed, Sep 20, 5:31 PM (10 days ago) to TSHINGOMBEKB, tshingombe, DSI-Notification partment of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programe, exposition science -2.programme research development support : St peace college lecture and learner development under planing. Department high Education vs saqa vs qcto,vs seta research resolved time table examination Assessment police , Portofilio documents systeme integrity police academic, -2.1. purpose : inovation practical and theoretical. science and technology science national trade factor outcome time table trading examination and qualifition framework national diploma n engineering and council trade sector authority , inovation system outcomes empower system subject entry phase learning and lecture teach science exhibition generation technology Assessment police ,and Engineering assessment trade machine and trade control system process project system controle evaluation system 2.1.2 knowledge: inovation practical and theoretical trade technology electrical engineering Electrotechnolgy empower value are recreation orientation maximum,value tax , return studies and Examin electrotechnology engineering time table assessment Completed research linearise system technology value entry lecture exam nated vs saqa vs qcto linearise system electrotechnology power fundamental job duty job maximum,job value minimum trade operational,task minim component system, -Job duty cycle system value : learner lecture framework qualifition and occupation trade job value salary resource humain maximum fiscality minimum technology components system : sciences natural system investigation design minimum agreement value job trade module,task minimum ,task minimum service require trading sectors and maximum sectoral electrotechnology trading components Value financial tax system: 2.2.3: strategies: strategies phasing module tasking circulum system implentation levels grading lecture objectivity: The trading lecture and learning system engineering science electrical subject and technology electrical ,electrotechnology ,education technology System outcom , trading education technology systems power factor demand system education , efficiency systeme assignment power objectivity module task , maximize inventories psychopedagogie metric system month week of observations learner form test assessment assignment control tpm maintence meeting product control technology goal . -1.2.3.4: development humain generation : system teach sector organisations technology rate value maximum rate demand factor admnise value ask required report system value. -1.2.5.component: trading lecture used campagny manufacture relate system Industrial Education system intelligence management system information ,education computing control system switch and material support command disposition component manufacturers Numerical time table framework regulatority Education trade relate handbook guideline information and orientation integrative system component handbook relate maintenance update , upgrade system -1.2.6: basic scieny infractuture: implentation of research inovation mission equipment College equipment framework theory practical lab workshop workplace implentation department gov system ,more Inovation,tax incentives,, Meeting request -National energie regulatority of South Africa mandatory electricity piped , invitation me minister tribunal,, Meeting electrical conformance board design installer regulatority Cox competition b Meeting salt .dmrg stick ,sale revenue npower plant fuel used national treasure sars department of energy mandatory ensure private sector participr in power generation , Meet national skill fund,, national research fund ,, 1 to tahitaditshingombe, TSHINGOMBEKB, me, tshitaditshingombe The Electrical Conformance Board of South Africa takes it's role as the national umbrella body for the electrical sector seriously. We constantly try to help and answer all questions as quickly as possible and also help to mediate between conflicting parties. Please be aware that the ECB is a Not for Profit organisation and as such we are limited by our resources and budget to help you. Please be patient as we have in excess of 7,000 cases each year and we want to ensure each case gets the time it deserves. If you are happy with the work we do for you and the industry please feel free to send us a donation. We really appreciate everyone of our contributors that help us make the electrical sector a safer. Members Area Change Email Change Password Logout Settings Set Preferences Campaign Subscription Center Change Email Change Password Quick Search Type Date Number PO/Check Number Set Up Members Area Billing Print a Statement See A/R Register See All Transactions Pay by Credit Card Support Contact Support See Support Cases Edit Your Profile Custom SuiteSocial Registration related updates Upload Files Registration Update Certificates of Compliance CoC's in Progress View, Confirm or Cancel a CoC Buy eCoC Credits View eCoC Credits Begin a CoC (until July 2021) Begin a CoC Sans 10142-1 Ed3 Quick View Outstanding Balance R0 Open Cases 0 Contact Us Home redirect Members Area Change Email Change Password Logout Print Individual Statement department of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programme, exposition science -2.programme research development support : St peace college lecture and learner development under planning. Department high Education vs saqa vs qcto,vs seta research resolved time table examination Assessment police , Portfolio documents systems integrity police academic, -2.1. purpose: innovation practical and theoretical. science and technology science national trade factor outcome time table trading examination and qualifition framework national diploma n engineering and council trade sector authority , innovation system outcomes empower system subject entry phase learning and lecture teach science exhibition generation technology Assessment police ,and Engineering assessment trade machine and trade control system process project system control evaluation system 2.1.2 knowledge: innovation practical and theoretical trade technology electrical engineering Electrotechnolgy empower value are recreation orientation maximum, value tax , return studies and Examine electro technology engineering time table assessment Completed research laniaries system technology value entry lecture exam nated vs. saqa vs qcto linearism system electro technology power fundamental job duty job maximum, job value minimum trade operational, task minim component system, -Job duty cycle system value : learner lecture framework qualifition and occupation trade job value salary resource human maximum fiscality minimum technology components system : sciences natural system investigation design minimum agreement value job trade module,task minimum ,task minimum service require trading sectors and maximum sectoral electrotechnology trading components Value financial tax system: 2.2.3: strategies: strategies phasing module tasking curriculum system implantation levels grading lecture objectivity: The trading lecture and learning system engineering science electrical subject and technology electrical ,electro technology ,education technology System outcome , trading education technology systems power factor demand system education , efficiency system assignment power objectivity module task , maximize inventories psychopedagogie metric system month week of observations learner

form test assessment assignment control tpm maintence meeting product control technology goal . -1.2.3.4: development numain generation: system teaches sector organisations technology rate value maximum rate demand factor admnise value ask required report system value. -1.2.5.component: trading lecture used company manufacture relate system Industrial Education system intelligence management system information ,education computing control system switch and material support command disposition component manufacturers Numerical time table framework regulatory Education trade relate handbook guideline information and orientation integrative system component handbook relate maintenance update , upgrade system -1.2.6: basic science infrastructure: implantation of research innovation mission equipment College equipment framework theory practical lab workshop workplace implantation department gov system ,more Inovation,tax incentives,, Meeting request -National energie regulatory of South Africa mandatory electricity piped , invitation me minister tribunal,, Meeting electrical conformance board design installer regulatority Cox competition b Meeting salt .dmrg stick ,sale revenue power plant fuel used national treasure sars department of energy mandatory ensure private sector participr in power generation , Meet national skill fund,, national research fund ,, Visa permit partment of science and innovation socio economic development, -1 .programme administration technology innovation international cooperation Gov , city power and St peace college Programe, exposition science , - Value financial tax system: 2.2.3: strategies: strategies phasing module tasking circulum system implentation levels grading lecture Meet national skill fund,, national research fund ,, Technology design engineering,systems engineering, 1..project - - purpose engineering, to DSI-Notification, TSHINGOMBEKB, tshingombe 1 .CVS Title government and Education job Engineering college. -Requirements flow down from level1.system design processes1.1 requirements definition process ,1.1.1stskehold expectation definition yes1.1.3technical solution - Algorigramme, logigram -Key lock,, -Equation key equation lock comparable logic K1.1 x +k.2.1+kn ..= k implentation K1.1x+k.2.1+kn..=k.implementation _____ Add. Method value : Substitute value: key Compare value : Step operator .. _____ Way key switch K.1. Outcome, education technology technology electrique ,electrotechnology EIC EIC : electrotechnology : electrical international commissioner rules , Commissioner electrical international,commission energy,,commission ligthning,, system international physic ,chemical ,, Construction electric association ,information rules Labels, Power empower : fundamental system, process implentation phase operationel step task project: Schematic diagram: principal game Technologie ,supplies power purpose power : rules attorney: machine system control process Project fabric. - power commissioning code standard Value nominal operationel work : -value minimal operationel work labour: -value value cut operationel , Value selected , choice basic advanced purpose diagram design Key lock contacting value outcom technologie are Cree. -principle schematic: schedule Orientation projection flow share line manager system process purpose horizontal vertical team line flow -Purpose purpose : 1.1,,1.2,,1.3,,1 5.. operationel task ,logic diagram logigram , organigrame organisation orientation planing supervisor - design organigrame: Way key switch organisation supervisor planing way , 2 way ,3,way block Mono schedule schematic,4 way switch suplie power recall delay relay o'clock dimer -Organigrame schematic blocks,convert information : ,,Organigrame board metering , logigram , algorigramme.bod distribution board , distribution system design . _____ - equation logic : state logic ,0or 1, voltage 220,380 F1=0, F2=0,F3=0, circuit breaker MCB MCB1=0,MCB2=0,MCB=3, Line 1,2,3 state = 0, F1+F2+F3, ,metering kWh=0 , kvarh=0,KVA =o cos meter= 0 Circuit breaker ,over load rcdbo =0, Db box system db=0, operationel technologie, Equation logic Db= F1.+MCB+kvar+kwh Power supply, Db = lights+ outlet socket+guyzer+ Sw1=1 light = 1, sw2=1,sw3=1,SW 6, ,SW 5, _____ - organisation dol ,reverse. Load. Km1= F1+so+(S1+km1). Motor Km2=F2+s0(S2+km2).. _____ K1m = F1+so(S1+km1).km2 K2m=f2+so(S2+km2).km1 _____ K start= F1+so(S1+km1).k d K delta=F2+so(S1+km2).ks _____ On line generator ,,transformer transmitters Kgenerator =F1+so(S1+kg1).kg 2 Kgenerator=F2+so(s2+kg2).kg.2 Transformer = F,=,1,(Q+break+Q). (Q+break+Q)+transfo + Q+Brak+Q+ _____ -Algorigramme: operationel system Initial f1.start ..F1=1 yes , or not initialisation,F2=1,yes ,or egual =o initial Initiation , f 3=1,yes or equal=0 initial , .,SW = 1:,yes ,,km = 1, yes,kg=1 yes step or reininitialisatiin . Db box = ,1 ,,D's=,1 activation atstem End procedure ,, _____ Logigramme algebraic boolen , Coventer Binaire 2. 0,1,decimal base 10, hexadecimal 16, Input / out put logic byt Sw1=0,sw2=0,sw3=0,SW=0/ 0000, Base 10,,base 16 S1=0,S2=0,S3=0, S4=0,=0/0000 Km=0,km=0,km=o,km=0,/0000 Kg=0,kg=0,km=0,Km=0/ 0000 _____ , Fortran CLS program,PLC 10.Print sw1 20.Print sw2 30.print sw3 40.print sw4 50 print S1, 60 print S2 70 print S3 80 print s4 90 print km 100 .print kg 110.print t Input ="sw1", sw2,sw3,sw4,Se Input = S1, S2,S4,S4,, Input = km, Input = kg If " sw1"= 1, l = Else Show String _____ Robotic research operationel Algo pin address value scater position _- - _____ Analyse design ,analyse circuit. Sequence , circulum purpose - call key display sw1,sw2,sw3,sw4 -call and recall ,db ,Q - call and recall current sw1,sw2,sw4 - call way key + Call km,call kg ,call. -Module call and recall sw1 task ,call task ,sw2 ,call task sw1 required contact task sw1 = 0, sw1=0, Task km Call pression pressosta kp,call manosta ,call detector call,termomete kt Relay Current exp -Module calculator operationel, call task ,call , sw1 operationel logic add, substraction , multiplication,division task Module inverter ,module multiplex , Integration circuit module switch , Call pression under pressure, Call , module calcule step task ,S2,S2,s3s4,sequence pression ,selector Call pin address ,transistor thyristor comande task , Call module matrices ,Display module.. operationel system call recall task ,multi task multi use, mmono task, call windows,, operating system call motor lecture current disc tape magnetic electromagnetic memory card , reader card call ,sub system - Registered Party:Project 31567 STPEACECOLLEGE / CITYPOWER TSHINGOMBE Balance 0.00 ZAR *Statement Date Start Date Show Only Open Transactions .CVS Title government and Education job Engineering college. 1.conte t engineering electrical career project Project officer outcom e legislation government engineering gov city .yes 2.2 abstract job work career category job skills.yes 3. Entry Engineering electrical trade infractuture implentation support. Yes 4. Purpose asssessor .vyes 4.1 case study how make calculation for a distribution substation. Yes - 5.requirement substation , 5 purpose and required , advance basic. Yes 6. Requirements power station and central system appliances TV reliable , Yes 8.requirement Dimensioning workplace. Yes 8.2 fonctionalite principal . Note cacul office , bureau studi ,sabs ,ECB,realii calcul test Yes 9.reauired domain application distribution network . Yes 10.of electromagnetic induction to solve problem. Yes 11required energy dimensioning, Yes 15.1 rate discharge required need adjusting energy determine secondt control power requirements. Yes 16. Required functions function. Yes 17. Required report current measurement. 18.required energitcal energy and electro energy mass government weight Gass products. Yes 19.1 ..circuit diagram of analyse energy meter , ATM term standard automate teller machine. 20.require case diagrams for arm systeme. Yes 2.1 required ent Electrical machinery motory motor and generation Nomenclature assembly,step Yes 2.2 required calculation of induction in the teath of stator. - required ,an experiment in in transformer rewinding an winding instructable.step 2.5 requirements engineering electrical work department orientation wastage life assess life cycle analyse is methology association commercial products or services for instance case of manufacture product impact are Assessment form row material. Recycling final. - seta form assessor saqa - city power structure organisation inovation. -Strong cities network , - Education and for innovation power of digital technologies, -30.. required design analysis Engineering science energy, engineering chemistry, engineering physics biophysics science electrical energy.. 30.1 robot dynamic kinematics and control calcule Dimensioning nomenclature operator kinematics. 30.2 requires Industrial research means planned research critel innovative grow ,equity components compagny appliances sti stick reports. 32.rewuire total energy systems required load current at point engineering electrical faculty tshingombe fiston Thu, Sep 28, 5:03 PM (2 days ago) -Requirements flow down from level1.system design processes1.1*

requirements definition process ,1.1.1stskehold expectation definition yes1.1.3technical solution tshingombe fiston tshingombefiston@gmail.com Fri, Sep 29, 7:19 PM (14 hours ago) to DSI-Notification, TSHINGOMBEKB, tshingombe -Algorigramme, logigram -Key lock,, -Equation key equation lock comparable logic K1.1 x +k.2.1+kn ..= k implentation K1.1x+k.2.1+kn..=k.implementation _____ Add. Method value : Substitute value: key Compare value : Step operator .. _____ Way key switch K.1. tshingombe fiston tshingombefiston@gmail.com Fri, Sep 29, 9:14 PM (12 hours ago) to TSHINGOMBEKB, tshingombe, DSI-Notification Outcome, education technology technology electrique ,electrotechnology EIC EIC : electrotechnology : electrical international commissioner rules , Commissioner electrical international,commission energy,,commission ligthning,, system international physic ,chemical ,, Construction electric association ,information rules Labels, Power empower : fundamental system, process implentation phase operationel step task project: Schematic diagram: principal game Technologie ,supplies power purpose power : rules attorney: machine system control process Project fabric. - power commissioning code standard Value nominal operationel work : -value minimal operationel work labour: -value value cut operationel , Value selected , choice basic advanced purpose diagram design Key lock contacting value outcom technologie are Cree. -principle schematic: schedule Orientation projection flow share line manager system process purpose horizontal vertical team line flow -Purpose purpose : 1.1,,1.2,,1.3,,1 5.. operationel task ,logic diagram logigram , organigrame organisation orientation planing supervisor - design organigrame: Way key switch organisation supervisor planing way , 2 way ,3,way block Mono schedule schematic,4 way switch suplie power recall delay relay o'clock dimer -Organigrame schematic blocks,convert information : ,,Organigrame board metering , logigram , algorigramme.bod distribution board , distribution system design . _____ - equation logic : state logic ,0or 1, voltage 220,380 F1=0, F2=0,F3=0, circuit breaker MCB MCB1=0,MCB2=0,MCB=3, Line 1,2,3 state = 0, F1+F2+F3, ,metering kWh=0 , kvarh=0,KVA =o cos meter= 0 Circuit breaker ,over load rcdbo =0, Db box system db=0, operationel technologie, Equation logic Db= F1.+MCB+kvar+kwh Power supply, Db = lights+ outlet socket+guyzer+ Sw1=1 light = 1, sw2=1,sw3=1,SW 6, ,SW 5, _____ - organisation dol ,reverse. Load. Km1= F1+so+(S1+km1). Motor Km2=F2+s0(S2+km2).. _____ K1m = F1+so(S1+km1).km2 K2m=f2+so(S2+km2).km1 _____ K start= F1+so(S1+km1).k d K delta=F2+so(S1+km2).ks _____ On line generator ,,transformer transmitters Kgenerator =F1+so(S1+kg1).kg 2 Kgenerator=F2+so(s2+kg2).kg.2 Transformer = F,=,1,(Q+break+Q).(Q+break+Q)+transfo + Q+Brak+Q+ _____ -Algorigramme: operationel system Initial f1.start ..F1=1 yes , or not initialisation,F2=1,yes ,or egual =o initial Initiation , f 3=1,yes or equal=0 initial , .,SW = 1:,yes ,,km = 1, yes,kg=1 yes step or reininitialisatiin . Db box = ,1 ,,D's=,1 activation atstem End procedure ,, _____ Logigramme algebraic boolen , Coventer Binaire 2. 0,1,decimal base 10, hexadecimal 16, Input / out put logic byt Sw1=0,sw2=0,sw3=0,SW=0/ 0000, Base 10,,base 16 S1=0,S2=0,S3=0, S4=0,=0/0000 Km=0,km=0,km=o,km=0,/0000 Kg=0,kg=0,km=0,Km=0/ 0000 _____ , Fortran CLS program,PLC 10.Print sw1 20.Print sw2 30.print sw3 40.print sw4 50 print S1, 60 print S2 70 print S3 80 print s4 90 print km 100 .print kg 110.print t Input ="sw1", sw2,sw3,sw4,Se Input = S1, S2,S4,S4,, Input = km, Input = kg If " sw1"= 1, l = Else Show String _____ Robotic research operationel Algo pin address value scater position _- - tshingombe fiston tshingombefiston@gmail.com Fri, Sep 29, 11:40 PM (10 hours ago) to DSI-Notification, TSHINGOMBEKB, tshingombe _____ Analyse design ,analyse circuit. Sequence , circulum purpose - call key display sw1,sw2,sw3,sw4 - call and recall ,db ,Q - call and recall current sw1,sw2,sw4 - call way key + Call km,call kg ,call. -Module call and recall sw1 task ,call task ,sw2 ,call task sw1 required contact task sw1 = 0, sw1=0, Task km Call pression pressosta kp,call manosta ,call detector call,termomete kt Relay Current exp - Module calculator operationel, call task ,call , sw1 operationel logic add, substraction , multiplication,division task Module inverter ,module multiplex , Integration circuit module switch , Call pression under pressure, Call , module calcule step task ,S2,S2,s3s4,sequence pression ,selector Call pin address ,transistor thyristor comande task , Call module matrices ,Display module.. operationel system call recall task ,multi task multi use, mmono task, call windows,, operating system call motor lecture current disc tape magnetic electromagnetic memory card , reader card call ,sub system - DHET... 5.Purpose: Completed time table implentation coverage Summative regularity, subject n1, n6, asservissemnt task assignment homework, marks allocation. 310x 6 , module , content module scaling. 100 marks , student program, asssessment tools marking memorandum , Isat.icass continued assessment , -Body quality insurance re certificate rating low, ..outcom scotiss qualifications value Assessment Portofilio I Engineering low ,teacher lecture judging evidence ,subject Quality Assurance, the completed solutions, recorded programs assign short ,re-assessment develop Engineering , analyse Probly, designing a straight problem, simulating or constructing , candidate class part question operationel skill reasoning skill total point achieve - candidate class /,part question ,//operationel skill/// reasoning skill total point achieve, Mandatory skill development course analyse staring , ,d.. Topics ,nated levej subject module.. - applyy math skill to manupulr low and working skill , cLccul , Applied Engineering electric skill analyse .. administration information. , description of charge, authority , Conducting the assessment: high judging evidence internally marked and verified , re - assesment unit assesment .. -Question / point of process or accuracy //expected responses - checks length correct conclusion/ evidence correct reason other draw..- - / evidence of appropriate add sub correct , Correct answer.. -eviden e module total examin ER composite ,overall strategy square .. - totalprocessand accuracy point for test total reasoning.... -isat integrity icass assessment subject . Conceptual question problem hydro electric generator concept assuming unit, conversion wath current , - integrated concept ligth trading concept cost heater , power Dhet...principle and practice purpose value work component engineering national ncv n engineering,scopet integrity engineering electrical level 4, and n6 saqa n diplomat examinaty. - Scope of...isat -Topic mark engineering trade anted and nave. Produce, operate component driller. - sub activities task ,time framework time allocation , 1 manufacture size weight scale power specific, / time. Total. - resource requirements . Tools assessment, material... . - topic operate and - challenge n diploma duet vs. saga diplomat vs. Vs. anted test council trade reasoning teach learners theory practice learning value assessment. 6.Circulum: value add assessment ,is or is not subject to changed, Saqa engineering...resoningvs counct vs NC's level electrical infrastructure dhet principal theory practical vs ,NC's matric teach learner assessment execise book technology electric vs, instituts engineering electrical,,, drawing Diplomat math engineering science drawing evaluation trade theory electrical engineering ,step dismental, step dimension works vs in AC machine theori instruction operational requirements algebraic, step qualifications rewinder vs council trade code ,trade minimum ,test resonement low ,test , occupation trade vs quality insurance Engineering , AC ,DC machine ,topic foundation, system ent level AC, vs NC's matric seignoy technical princy AC ,logic circuit math investigation quadratic exsry , input lecture output vs xircuy, trade scht vs code tender instruct,vs Engineering ,code trade minimum, knki manufacture batterycorrect , constructeur installaty circuits grade safety technologie ,nsaaa step work daily acti understaking material package mainty , assembly panel, labelling battery AC , DC, cabling soldering control competu compagy phase , - nated base Norton the venin network, resistance parole series start parallel start delta reseat ,advanced field ,dial Deer distributysystem substation vs basic sub station trade VCC,ICC advance physics chemistry engineering .. Memorise ,torrseafy advai field but work week basic field electrical under going research , - scope diplot vs advance field dhet machine transistay curixuy phase policy mathematic asic field d, - component job institutor low fundamental AC research AC research ,package low degree ,saqa n6,nqf7,78, degree technoy electrical outcom news , understand experience component didacy AC, DC,psychometric pedagic , - evaluation saqa memorise evaluation prep trade test vs. monorise vs memorendum test test circy literay,lecty learning ,Sawa meet reat

lecture nated nated ,vs teach learner instity fundamental working compagny, Engineering : scope work project. Irregularite semesy policing Poe's award years self meet achieve textbook n submitted, 2000 award policy submitted papper for completed, previous papper discount. -completed textbook information after achieve DC machine Levi transit advance systeme completed , resposable ,exam holiday memo vs saqa vs is chat to win court , Engineering city power tender to Portofilio low rules , Portofilio city power experimental job,Shoprite experience but sales documy wallets account treasury .. - memorise nated instructywas to doing to rwiten ast no study buy opery theory , ciproc ,sars nated council business cooperation work nated lectt copyright and visit studi labour pliay permit to entry schot busit. Lose colrith process casebook ,sars calender busiys hool college in case with dhet deal .memorise markets textbook, memorise sale book sars commission property intellectual de register dhet high educare permit .policy exam national copyrith re mark book bibliogray reference number to mutch years .... - proficy colrith educare education system note book didacty lesson plan course inventories research methods model lesson plan , business markt busiey comments book note order project book, module week was not bring market scaling reproduction project learner 6.1. Assessment coverage DHET ,saqa council,, Subjects :project assessment.. and career mentoring research coverage faculties completed module, - project title : engineering national trade learner and lecture technical vocational department higher education examination national and qualification Framework national ,council trade and council engineering trade test question papper project modules explanation low rules exercise book, completed outcom project society. .education construction and project bridge keeping stability journal thesis stability civil engineering,and mechanical engineering and electrical infractute - psychopedagogie engineering civil outcom technologie ergonomic, , 1.Project construction and project management,investigate wat key national road conduct study feasibility assess viability upgrading existing route and the construction of new or by pass route , investigation found freight, municipality area . Light 1.project description: Extension from education n DHET Education to saqa council Education ways distance learning , infrastructure asset, a grade separated . Strategies construction elimination abnormal educare loop ramp load , bridge . Bridge Education,bridge substructure piled foundation abutumebt front Poste tensioned voided deck superstructure bulk ,design of layework make optimunmaterisj , - problem encounter and innovation, - piling tender temporaries ,archeological , Pile cap, temporary deviations by pass, stop along , empower target, - Project status: construct, chalkeny, inspection survey, safety educate. -case study testing implications , to conduct to detail design in order a cuss road mining , accommodation up grade, Client requirements, pavement, Layout of trial section x,y lateral restraint ,increase nearing capacity creasing length of shear tension verification geogridr static plate load testing falling weighting deflectimeter were used to verify the effect of geosynthetic , - present research: traditional geosynthetic reinforced weakness subgrade and Normally increase ,penotometer testing engineer later works, Project description: resultat from,pressure depth,project progress, strain material n/ mm , anchor tension force , equivenlent rigidr , flexible baseplate the propose construction programme duration. - cross section bridge structure, beam seat, concrete panel facing , reinforced,select backfill ,common , Extraction of durability subcontract yield stress, ultimate stress MPa ,bridge abutment .. Framework bmodern labour construction public work program leading to critiques of infractuture sector expand public b,construction maintain, Council nomination, project layout structure ,, , - project description: test site capture data km track Struct deflecty railway train whelk linear teanst steel , position track structure, resultat discussed. 3.dhet mentoring: Outcom career saqa maq ..education career mine geotechnical agreement Agricole sectorial engineering mining qualification authority mining and minerals sector . understaking electrical material mining qualification career mine workforce. Mining sector , why choose career in mining minerals sector, , Career mining choose a career how to make a career choice , Critical cross Feld skill required mining sector , problem identification and evaluation, problem mathematics literacy , planning career in the mining and mineral sector , wath career suite life choosing qualification, occupational categories technician trade workers ,machines operayorx mainstream career , understand qualifications, artisan career option mining minerals , career,, professional career ,laetber paths career ,financig your studies,,gold platinum metals ,diamond,coaj,cement line, jeweller ,extract petroleum and gases,service incident other .. Bridge catergor - keep bridge indentification number carer opportunities occupation framework occupation level n qf , occupation categories ,1,2,3 elementaire worker, machine operator,technicia trade , manager profrssy, production - - 7.1 Purpose dhet : ,, Education input out put Subject mining examination , safety health labour mining police. Outcom ,mining examinator national trade , explosion mine , discrimination mine . Trade AC ,DC, mine machinery. .7.2. purpose nated career : bridge static stability briage movement phase periode frequency stable way phase to phase job Engineering lecture transition phase - psychomotor job analt functionalite rate class hrv constructy woru saw building task tools must up date collective ,function real word student function machine student rule input output the class function rules teacher created spread , gradient a vector function gradient if scalar f (x,y (arrange partyah, stability construction isostaique diagram force structure hyperstaics beam ,regulation commissair,tools form stable trade nated engineering subject , assessment task build ,mark allocation ,content average , asservissemnt tools ,point balance framework structure stability.. - instability systeme development bridge statement periodic 3 month way key learner break time table semmester maintained up grade up date . . Teaching plan daily underplani g phase foubda phase intermediate seignor, staff lecture ,junior seignor principal lecturer Engineering traine circulum vocational subject . Time table general signal linearized x (t). Control didactic process machine key learner input out put loop variable subject x = ,y = y (s(x) discretion signal temp , instant ,energy power time continue R+ 1 , jx ,power ,, - transformer Fourier control didactic time table x t , r+ 2 dt , counter measure frequency content sum , property x(Q) + ,,property lineaire time table input output , real time table ,,derivation note time table dx = St , TF (St) ,, integra, impulsion diract time table uniform impulsion retenttion xt expent time table ,, complexity time table loop , - transformer Fourier TD ✓(x,y) , ,filtre lineare box lineare circuit transfer input output (s) , x (t) .. - regime transitaire learner phase and teach system linear u (t) system education stable sponement stat equilibrium means system input out put loop Kirchoff constants transmittance , signal course modulation module week output modules course type trade phase -test readiness b.test scale maps distance learning corresponding learner concept distance learning graphic scaling size generating km learner distance , scale weigh learner grade real m square space scal factor point ,accuracy mesure survey , degrees latitu ,geodesie projection cartographic board coniaye,, isometric learner plan circulum ,latitude circulum implentation,perimeter circulum schema sequence circulum phase , transformation coordinator geographic circulum policy real engineering, longitudinal meridian ,exposant projection,constant projection p,coirdinat projection examination circuit dhet vs qctovs saqa scale .. - probably.. -movement phase vibration force oscillator learner, input out -Low rules of conservation of energy learner circulum policy, engineering move mechanical kinematic energybkEvwork done conservation force ,step determiner system Education , potential conservation input out put teacher , kE1+PEi= kEf+PEf ,step 4 , step phenomen bbeam energy breag,, Efficient learner ,useful energy or work output ,total energy input, transformer per phase energy phase learner,, Activity learner device home work scall effici, process kinetic calculate gravi learning linear mecanic, Frequency constant capacity static displaced,resonance frequency learner materit Curie ,Piezo electric voltage,, - robot dynamics kinematic control learning teach plant scare , position coordination lineare , circulum velocities Cartesian circulum move phase learn, rotation matrics activities passive rotation ,elementaire phase reprensatat, generality task space classic , body acceleration effectuator ,x y,z, angle ..language machine education funct ,from matric mild learner process ... - induction learner error resource machine educau..matrix time table line colonel movement weekend months build key ..form work job career .form saqa form dhet ,for qcto language matrices movt 2week ,3 month ,12. ,2 years qualifications experience language matrices deployment years compared , circulum implentation to the college and instituts form moved record exam internal external time typiste record archfile statement certificate,and diploma..fabric system. 8.1 DHET, vs seta merseta sasseta

training Accreditation training, 8.2 Purpose: manufacture relate theory practical, components equipment, - trade ton max,chain load diameter. - trade ; code objectivity criteria. -electrical testing instruments, safety and faulted find ,system multimeter insulator leakage tester phase rotation tester. 1.correct test reading all safety rules ,armored , make standard armoured cable up 16 mm sq core volt glandess ferrules and lugs use to manufacture specifications ,join to mechanical CA2, indentification rating current voltbCA4 terminal PVC cable up to 1209 entry into cable end viz using mechanical compression methode correct according sabs 0142, - installation of machinery : install and level compressor motor a machine part on a fabricated base ,, All safety aspect adhered to ,no damages to equipment,level withug ,, Install commercial refrigeration system capacity 19kw refrigerator include pipe work according drawing specific ,single phase induction motor ,phase squirrels cage induction ,rotation correct ,correct ,,trade fault fault fa control find , control panel and motor control all safety aspect adhered sabs , correct test .. Vs . 1.2. Circulum extra subject electrical energy , industrial electrical ,electronic Engineering trade theory vs practical Module energy renewable. Electrotech. - thermoelectrical cooling , Peltier low relate manufacture. Cooling air conditioning modules, technical controller product , coefficient of performance,thermal design, DC current vs technical power supply type, - recommandation of the manufacturer , comparison of two technical controllers ,,linear vs amps ,,I/ max derive dt ,25 k ,0- 0,33 , I/IMAX should middle , 0,33 -0,66 x IMAX ,, coefficient of performance (cop) ,, .. performance vs current, maximum temperature,warm ,cold ,is increased , thermal design,is crucial allowed , -thermal design , performance of system, reducing optimise hear sink fan ,power losses isolates area , Peltier elements,, Dissipation warm side ,Qg=QC+pel. - I= 30 IMAX .. -heat pumped vs current:,,I= 0,3 ,, I max ,AC)Qmax , ,,thermoelectric thermocontact cook eratiin DC vs pwrt , maintence , - recommand manufactt ,limity current ripple regulatit output , - ferrotec , 19 Perce, engineering controller DC curry case manufacture,,power compare.. - Comparasuon of two controller. , Stability to work. - design process: thermoelectric, estimate heat load interactive test parameter is amount of heat absorption, power dissipation radiation , conversion conductive, dynamic (dQ/St load transfer ,choose Peltier elements ,, -electrostaric ,electrodynamic, electromagnetic physic industrial electric engineering physics Heat rejected vs current control play heath thermal hear sink estimate aths ,, Performance vs current I/ max St heat pump,, heat pump vs current , Amax = Qc /0,25. Temperature sensor ,object high precision ,power supply requirements.datasheet control information input 9.1. Dhet vs ,seta merseta sasseta,vs saqa, 9.2. Purpose: all the safety and policy Defense civil and military safety outcom assessment. Manufacture relate theory practice , engineering learning - purpose STD 1285,, fuse holders ligthning arrester , electrostatic discy. Scop commercial and military electronic devices required no stated merseta seta no status to section mandatory , gov gazette etc EIC sabs correct. - application documents: sabs iec ,,general requirements sabs EIC mil norm , -D.3 functionalite marking :mil,sabs ,EIC sabs , - terminal identification: acquisition documents identify together functionalite line,load instrument , - other marking electrical diagram caution marking caution marking alignment marks, assembly instructions and other marking , - electrostatic protector confirm method where size limitations not accommodate all of the marking , requirements order of ,shall apply, -identifying number sabs sans ,EIC in mil safety code trade CO1, ,, mil -manufacture source code ,merseta mil ,name trademarks merseta sasseta seta. Mil STD , current rating when applicable ,date code when applicable , other rating and marking ,code method color coding telephone code , merseta colori,, -Dc breakdown voltage shall be xolor coded ,dot accordance method , except that color circuit breaker,line a,b,c load a,b,c marked ,,main terminal break shall be marked vertical, accomodation letter , precedes , polarity thermo static switch FSC 5939 mil rotary sequence is counter clockwise visibility , acquisition ,open frame construction switch marked construct color pressed moldings , punch identification, -toggle switches : toggle switch terminal marked in accordance, termination identification, identification push , contact arrangements symbol and terminal marking, single form normal open ,close ,,item specifical space contract number date serial code merseta ,, - used unit pack bag and ,procuring activities physical space is not available mark mil used, - designator for part assemblies : designation marking process to IEEE marked ,, sabs sans EIC mil Reprocurement: contract contract , used assignment. Details required. Electron tubes: type designation or number type marking sab, ,labej mounted merseta seta sabs visible ,mil - electrical electronics part printed wiring board marking mil STD 1285,, -name plate data ,sabs article mil data confirming applied .. sasseta merseta sabs correct - mil STD intended use ,issue of discuss,marking for shipping sabs, serial number sabs sabs merseta code mil ,air transportablr item , reprocurement sabs mil , subject term key listing ,name and caution plate, caution plate sabs merseta seta sasseta , mil STD , priority of identification information Assessment ,marking process,, -drawing engineering code gage code format size letter mil sabs number system , - design activity gage code drawing numb army tank automatics tank wareent number sabs ,size cage code scale ,unit , - pin number length contractor manufacture item not change original,defense logistics battle explanation ,record accurate number number duplicate , responsabily Engineering transferring design from design to another ,sabs sasseta seta add cage original identity , maintain design activity activities b, manufacture,pin item meet ,tabulation assembly installation ,source control delineat ,, - design synthesis : sabs merseta. , Mil 8.2 .Dhet ,vs sasseta seta accreditation, Assessment. -mil STD , safety security training, merseta required.gov gazette, Applicable ,: document , general engineering n studies electrical engineering.business studies, Government documents , specifications other government drawing engineering and Engineering science subject safe , order of priceden , definition commercial and government entities gage shelf , contains, design activity engineering electrical , documents ,, functionalite marking engineering electrical joint electronics type designation system engineering electrical subject n ,manufacture identification engineering n diploma , nati supply code for manufacture n engineering electrical trade merseta ,, nomenclature,order of procedt, part identifying number pin engineering, procedure instruction manufacture number ,set select drawing general requirements, government names join electronic type design system nomenclature ,army nomenclature binspection stamp ,special characters contractor entity gage identify marker equipment, except to table ,unique item small item ,limited multiple item , reference design government reprocurement, details required,type number and design,electron tube ,electronic printed wiring board name plate , marking battery circuit, marking labalk ,high voly notice , radioactive matery sabs merseta, ioning radiotion sabs , caution sabs , schematic wiring and cable sabs San IEC diagram , chassis identification, modification work numbers marksabs ,sensive electron device sabs IEC , sensive of marking ,general type number marking process ,wood sabs ,size labals sabs ,material radius corners mounting sabs ,spectral glass sabs IEC , opacity sabs EIC ,permanency durability sabs EIC , note usur did ,marking for , air transportable , . -2..introduction system management,process , required analyt , functionalite analyy, verification, system engineering process, system and control breaker review trade studies ,modelling and simulation metric risk management. Planning organising, system planing product and integrating system development, -3 system engineering. Electrical teade fundamental introduct , subject , application work experience, definition, facility ground system: - power distriy system sabs EIC to mil , communication system , bonding shielding and grounding relatship sabs ei. ..mil grounding safety practice sabs , ligthning discharge fault protection noise sabs sans , summary of requirements, resistance required sabs San,resistance to earth sabs sans department defense SANDF communication electronics requirements, typical resistive environment effect,neasyof soil resistivity,one electrode , subsystem ground burier gride sabs,resistance properties ,simple isolated vertical ,fLt potential,, ligthning protection, phenomenon ligthning influence ,strike holder structure less protection flash ,conductor impedance effect,inductor impeteaeth resistance ,basic fault protection fault protect .. Vs Saqa engineering electrical learning,advany maintence low voltage fault find , batteries,low voltage inspect service maintence battery charger , designing a lone renewal energy systems, design solar pump trouble shoot PLC,completed certificate competence , demonstrate understanding process communication system,control electrical network a control centre,spray wash energised high

voltage network, fault find repaired DC power machine,operate on high voltage network ,select up generator for renewable energy ,fault find repaired electric system winder installaty ,construction Area 7, Electrical infrastructure level 3 area ,- -inspect record report condition medium voltat station appropriate,test maintain high voltage isolator ,earth system, transformer, equipment ,commissy terminate ,,install commission terminate medium voltage joint medium cable dcmachine,mainten voltage switch gear ,,fault find system conveyor install ,mining fault,construction disment,overhead,special area chemical , interpretation State, maintence busbar and chamber association equipment traction substation, 3 kV DC traction regeneration traction inspection record ,breaker .. --Vs ncv vocational isat frame activity construction electric . Learner Practical theory electric principal ,introduct .. dhet , diplomat engineering electrical,, electrotech, militaire over , defense award challenge Assessment meet defense,, Electrotech , select power of electrical appliances to achieve set temperature,carry calculation ,convert mechanical energy to electrical energy. , determined the amount energy installation in termine kwh ,, determine cost installation AC ,cost incud , apply vasic magnetic theory, determine magnetic flux density for magnetic, interaction between magnetic field, AC lines of magnetic force ,flux MMF, interactive between current carrying Maxwell,non magnetic relative MMF ,motor left ,theory faults of switching,, determine energy stored,calculate length, principle, ,,compare diffentperiodi. Time form RMS value a stage,value maxitprak additional, explain singlt and three phase system comparison, voltage number calcutlind phase , demonstrate calcul diagram the operationel circuit, explain apply purely ,,explain effect having poorfactoe capacitor, AC penaltiecable size equipmt size current demand,running of induction motor on full load synchronouse static delta star , description transformer determine efficient no load components ,transfotcore ,type AC air breather conservation buchils ,core lamination , emergency stop button warning caution ,,state installation procedt consider all safety precautions application non service generator set , consider all safety ground condition state ventilation noise define refueling access, in AC commission the sets preparation insulation plant proving test suplyis correct installed,all cable are secure and correctly connected,the sets correct out electric ,state earth , connection from non service generator set switch gear equipmt AC check load cable and interconnected,checj the earth operate non service,identify generator,applyloD in accordance with safe working check and adjust generator set running ,mainy voltage ,shut down generator, carry out after use check in accordance completed recomat, maintence non service generator set maintain principal procedure,apply all safety equipment,install non service distribution system,install distribution cables,install distribution units feeder pillar mcv,rcz ,install operate and test ligthning and power distribution system lapds, statement design,ensure correct placement fixumaterial task, ensure task is installed to line,ensure task requirements adherapply electrical standard,ensure compliance with and enforce all regulatoriiij, evaluation thee executive m e electrician task , implementation safe work ,, Selected appropriate switch gear ,determiner capacity switch gear install diagram,manufacture local distrtpoinr , manufacture data protection,shirt circuit, diversity, maxi demand,connected load ,selected type wire identify system ,determine adequate capacity basic , protect Dhet ,vs saqa labour mine , - Purpose:for plant engineering examination the theoretical section subject,theory practical, Electrical,mechanical,,safety and management ,accident prevention ,fire protection risk control , project management,project financial loss control , - electrical technology, DC current machine.motor generator ,efficient DC machine efficient of DC alternating single three phase circuit transfo, production of rotation magnetic, character synchronouse three phase inducttmoyor ,semi conductor ,electric lamp and illumination,electric power transmission,short circuit condition ,circuit breaker ,cable insulator overhead, power economic of power supply,maximum demand ,fault discrimination systemeteical fault ,illumination exploinsion equipment,, - applied thermodynamics : air and gas compressor and blower,air motor refrigeration and property air condit,psycho entry ,steam generator ancillary ,heater balancing , balancing condensatir steam gas combustion heater transfer fuel transfer , simplestress, strain thin pressure vesell tension pression circular, close coiled shear force vending , temped ,strain second moment bendut shear foundation, fatigue mechanic,property,testing material twisting shaft property, reinforced Crete, conveyor wind plant ,elevator traction ,motion , displacement and acceleration,static dynamic ,belt and chain ,brake dynamic, toihead gear train lubrufian clutch cranes bearinghydrattransmissiin flow friction losses,material transmission pipe line ,Pelton wheel,flow in kaudnes, hydraulic machine ,mecanic measure air flow,dusting property, Commission safety maintenance condition. - planing and commission of project maintence schema fire detection system accident investigation, testing and repair electric motor phasing and synchronous AC motor operating tandem fault discrimination electrical,hydrastaic drivers classic sequence general, dust suppression,emission control flameproof,boiler inspection repair inspection vrsei unders pressure, maintence fault diagnosis compression refrigerator and air conditioning ventilation system steam pipes water traps ,steel rope inspection application type, 10.2 DHET, qcto scope, saqa sasseta. Outcome, -10.2.1PURPOSE: engineering science, module completed, algebraic linear basic foindamental system process fabric learner engineering science , theory theorem fundamental research,step task Learner lesson plan lecture plan mapping investigation analyse input out put subject module assessment f=ma+mg, v=u+at, p=wx.t, Fu= ft, heat = m.a .cxt , equation algebraic linearing exponent , Ax + by=o,,ax.ax b.b y=,, -fa.a +F.b.b , fa.a+FB.b=c.c(x+a) exp .n Subject Engineering electrical applied ---mathematics ,(1+x) exp n=1,--+ Engineering science g= ma + mg , v=u+at, p=w.t , Fu= f/t, heat = m a.x .c t2-t#, Engineering draw .. orthographic orthopedagogic educare education,care function. - industrial electronics, v= r.i , e= v+ r.i..theorem equation loop , Trade theory v= r.i, e= v+ r.i , // term 1,2,3,90 days, ///mark score point 100 mark,////inspect policy stolen excy//// recalculate error developm theory inventory motion low formula pedagogie fundamental engineering phenomenon low motion , Exchange policy investigation resolve framey regulatority engineering compliance crime vehicle ass license number low, step collationing crime information legal paray, crime source information identifying crime described crime analyse crime ,crime no protect over load identity module subject completed source and need ,design analyse feedback criminals trade theory safety . -engineering safety engineering completed design creation components safety management prevention low warning protection device incidey hazay acciy ,sab sans regulatory low motion F= ma+mg// Engineering labour ,inspect labour Education levy coid works relation collection misconduct fault award ruling compensation frame accidt ,F>ma+mg,,/// engineering policy framework regulatority implentation legislation informed. Claim assess indentify claim avai procedure case f= ma+mg,, complain f>ma+mg,, - test trade vs test dhet nated class question theory test , Test score mark subject, mathematics , engineering science, industrial elecy, electronical ,total value test engineering y/ evidence low given explanation low low rules limited Lim n (1+1/ n) exp n ,, Lim -b +- b+4ac/# a...,Dy/DX= 4x+3/2x+2.. into..., F=g.ma.mb/br#, p=rl stregy module elast ,fa= FB,/// vc ,vr,r#,r3,r3 Kirchoff northon , //// evidence Poe s resonning comparison test value test improper integral ,test converge diverge limited More ,less Rieman ,we not also define the integral as the limit as Delta x for to o of the genersj limit goes to infiny how does bound it self ln (2+ x) in this case delta x still equals 5 / n but x I = an integi calculator give resuy,compare force low motion gravity attract,compare test two frequency,compare two load transmission value //// evidence low quotient evidence judgement entry low exhibition limited fract of low rule ,value add ,task requirements logic low value,operator task compare two value force operator mass gravitational limited sum,evidence low lineare limited factorisation,compare two task , , Engineering council. - visa trade qualificay answer passport, investigation planning system undergo, mathematics, requirements test trade module limited derivation function ,integray function master number rewui factorisation, equation word ,, -engineering science, engineering physics required test physic: module static kinematics mass force, gravitational heater power motion optique , strength material ,hydray -,electro required , AC machine components resistor semie conduct insulator ,diode rectifier half electronics , E,,trade test require ,basic advance filling , Total faculty regularity, and irregularilarity extra classes. .--1.2 Saqa labal supply Ras nominal 230 v AC sans , wiring is 732 code practice electrical wiring installay is residence ,guide for marking of insulated , - electrical machinery regulation learning objectives,sans portable tools , clause council , Framework, equipment

,metal work, sabs 767 earth leakage protect , wound transformer secondary unearth sabs 743 ,high frequency generator ,, switch marked clearly user to maintain in a serviceable conditions , chief inspector performance prescrib testing manufacture of electrical machinery, qualifications experience,earning 10.3. Purpose: dhet nationt trade n engineering electrical,, fundamental engineering level and License trade engineering electrical professional council .. engineering electrical science engineering, mechanical engineering engineering electrical , - compare low test methode two motion Hopkinson , indentify shunt machine or more system learner low evidence low , v = applied voltage output power GI =1.V1 generator ,input power of motor M = (I2) , I1+I2, An ,n = efficient of machine output power,zm= n (I2+I2).v= input power of G,out power of G = n x input , n,= √I1/I1+2, armature ,total loss generation, à losses irons for generation , n= (I1+I2)v- Pm/(I1+I2)V.., E1=V-Ia.Ra,,E1/E2=$.N2/$1, Serie motor two motor load ,,E a ,E b, . mechanical couple, motion angulair velocity transitaire permanent current power lineare two system , grouped generation pilote ,two transformation load or more system , resistance,, enclosed area learner Learner motion engineering trade - phasor diagram total system complex wave transmit generator, fundamental results , maximum amplitude equation ration , learner, - e1= Em.sin 2w.t, ,e2= k2.Em.sin 2.wt,,,e3=k3.Em.sin . 3 wt,, en =kn.Em.sin.wt,,,value wave algebraic sum fundamental and harmonic,,e=e2+e2+e3+.... +en =Em (sinwt+k2.sin2wt+k3.sin3 et...k sin wt ,, diagram connected balanced load 4 wire ,load is vector,z 1=Z2=Z3=Z3= z ,, Ena=Enb=Enc,,ENA= EP<o degree, I 2=ENA/Z2= EP,, ENB=Ep-120,,0I2,I3,,, ,,I 3,ENC/z,,,IN=I1+I2+I3=0,, ENA=E2,/√3,, z= 15+j..impedance ohm . inductance, -speed control calculation, E=V-Ia.Ra..N=V+Is.Ra/K.$ armature full load, , -electrical engineering advanced basic load system continue learning professional, : sinus quantity voltage in form ,,U= u.o2.cis(wt) and current I=Io2 cos (wt+j),, P=U.I= U.o2.cos(wt).Io2.cos(wt+j) =U.o2.Io2.cos(wt).(wt+j)., U.2.Io cos(wt).(wt)..(wt.j)(wt.j).),, P, sinusoidal wave,U1=U1.02.cos(wt+j1,, Layout fresnel , V1=Vo2 .cos.(wt)..v2= vo.cos (wt-2p/3),,v3 = Vo# cos (wt-4p/3),, derivation integration sinus wave phase shift instaneouse average P= p,1/T.iny TD.pd energy effective recovery work heater,power reactive apparent , Q= u.i.sinj,,car,,Q= o.s2-p3,vectorial, inductance, process give voltage node distribution,, I1=j2-j3, I1,I3,I2,,j #,j2,,,I2=j3-j2,,I3=j2+j2,, ok,,balance sinus 3 phase network ,P= P1+P2+P3,, P= v I1+v2.i2+v3.i3 Power factor active reactive apparent, P=u.i= p+jq P1.=v.i.(cosj+cos(2wt+j)).. P2=v.(cosj+cos(2wt+j-4p/3) P3=v.i(cosj+cos(2wt+j-8p/3) P=*

=<p@+p2+p+3=+<,P=3.v.i cos j6.(s) Fresnel,,single phase practical load transfo area , synchronouse motor inte Maxwell Stoke magnetic volume toruf reluctance Kapp hypothesis manufacture motor ,e= NDT/St,, m= cmh . operationel balance,ms ,loss ,Lenz low, Low rules assessment is rules, 1/z = ,1/r= impedance resistance alternating ,1/g conductance,1/g,,1/l,1/c ,, sirmence conductor , low Assessment reaction magnetic load learning relation resistance system became impedance or impedance become reactance parallel load resonance systeme load charging, discharge , QC , system stability learning assessment, magnetic demanetismloe, rules engineering compare ,loop,,triangle delta Serie parallel, effect phenomenon P , practical work measure: , single phase transformer magnetic excitation field magny , vector denote H created moving electrical charge,Amper H= rot H,=<j Maxwell relation of Stokes integra countiur ,into A.dl= .into.iny rot A.ds,,into c HDL= into.int .d.s magnetic medium, vacuum herin,, B= u.oH,,uo=4.o.10 exp -7, Hm-@,,B=u.o excited,H=B/u°, dimension M and relation, reluctance magnetic, direction flux ..int c.H.dl=into.int.int j.dd=Ni=HL,,denote,€=N.I= into .CDL= into contour , magnetic ,,€=S+N.I = A., N.i=(I-e).B/u,, ferromagnetic to H=o permanent Curie,u+e=r.i , u =Ndj/dt from ,converter equation N@.I2+N3,in primary r@=o,u@=-e=N#.dj/dt, ,i2/I#, perfect tfo=P#=P2.A#,,U#=Z2.I#..complex ,energy balance active ,, power in out speed characteristics,e (I), u= nominal, I: ,,loss= r.i.i+r.ie,p2.j.u,,U=E+R tot , , - AC machine engineering creation of rotation fields a magnetic in space at angular rotation w at le blanc theorem a coil of ax by current ,I(t)=i.2.cos (w.t),, i.2.cos (w.t) create a magnetic excitation field ,m .H.H (t), m = complex from I(t).H. , velocity H.H. constant (t) angular velocity cos(w), Ferraris theorem create rotation winding , I1(I).1.2.3,,i2(t),H#,H3,H,3,,2 cos() 1.2 cos () 1t= Uwcos()1+,spaced regularly three could sinusoidal curen w balancing speed, speed synchronouse, bipolar,speed demonstrate Ms=60 rotate 300 rpm ,1 -operator power balance engine, P= r.i,,P= 3.u.i,, P=3.u.i.cos.j+u.i.u.s.u. ,.p=w.G,, P=wG+u I.P.3.U.U.cosj.u, iron loss mecanicak ,3 phase balance,, principle operationel, -F= into.iny .B.ds Lenz low, variation flux , E=j.f(w-w).e(ws-w).. Laplace force actions magnetic current ,DF=idlr.urB,electromotive force ,,e=DF/ St,torque ,P= C.ms,,D's,,do=w.dw,, maximum power , dw.dp. -low Faraday speed conductor,EMF,E= B.l.v , low la place f.em = B.l.l,, v- ,,pem = fem x = Bxl.l.E/b.l=E.I electromechanic batteries load resisu in magnetic field,, -leroy design plate number ,sum asyny motor trade type Type 90.I3,834030 IPP, cos 0,82, AV 220 A,7,5,,,Ks 1,8 Rd 79 yv 380 A, r/ Min 1410 ,is class F ,Amb C degree 40, mark of motor ,type 90 LS, LS : letter of the series, 90 = heigh axe ,stand 56, to 100 Number of Serie : 834039, protection indices : IP 44, 4 protection body solide more 1 m, protection out delivery motor 1,8kw,power factor (0,82) reaction,V = 230 delta ,star current 7,5 efficient 79% level speed rotation vrm , S 2 service in S 1= 100%, S#, 60%, class insulator (A104 degree ,s = 80%, t max exploration 24 kg ,speed torque inerrie monimerric,,, -charasteristics Puli g, fear reduce treil kR= 60, 0,85,,1450 Min , diameter of axe d=20mm effective treuul calcul pump MD.D/4 ..kg.m.m Pe=Q.g.h/1000.n..w,w=Fxl,,F=M.g,,wur=M.g.g...w sex Put =wur/t,,loss mec,= c mec.nex,,CA.cc=JD/dt..E=B.l.v,,Fem=b.il,,,,- motor power apparently,,S=E.I.√3,,power active P=,,Q=√s.s-pp,,,...XC=E.E/Q,,c=1/2π.fxc,,Ng=ns-n,,, -energie use / energy consup ,, efficient machine,w2/w1,,, efficy,= power use/ power consumption,,,,power motor = work/ Tim = force displacement/time,, -peak - to- peak, 2 peak, maximum=0,5 .peak to peak,average ,0,637,maxm ,1,57,,RMS effective=0,0707, maximum 1,414 , averaged,.. -citcuit RLC loop,source e1(t).. L.ddl/dt+Rdt/dt+1/ c1=dv/dt.. -Engineering electrical : learning motoring DC command power circuit start connection command start with star deltat .. , Power fuse f,control transformation,contactor f over load km ,relay k, control button ,time ,motor optional accessories phase, fault relay,ammeter , start delta switch power circuit starting with start Delta switch note out put ,220,75 HP, 125 HP and protection, control transformer,K2,k2.k3, contactor , overload relay,control option accessories,phase operating on dual ,220/380v, 380/660, 440/760 connection y. Star connected reduced ,load restive torque, Circuit breakers,n = operation time load constant load max, maximum temperature,time,time at rest max , maximum attend load loss cycle duration,time starting access,loss cycle, starting of electric break ,time sequence, Duty.. Development system - advance power distribution system drawing note, Provide electrical interlock with S1 breaker km1,class if S1, is open ,S1 control class unit mkm1 is close key interlock a show,provide kmb, f1a key interlock generator breaker GB,provide priority load shed control for feeder breakers in us,f1A switch gears provide interlock,GB to able operationel,when no priority load , provide diagram breakers switch gear with dti trip unit including zone selective interlock and arc flash reduced maintence, provide remote touche screen maitaunancd tip unit communication part ehernel gate variable,end arch flash ,, - design fault value mms symmetrical,value,I= symetrical RMS current,IP= peak current,e=2,7,w=2pf,f= frequency,time,breaking rated maximum interrupted,150 kv,50!,500 mva rated , 18kA at 15kv maximum, interruptions of 23kA, 18kax 1.30) at @1.5kv(15kv divided, vacuum interrupted,metal clad , IEEE , -Check capabilities, 13,8kv x/R=15, 13,8 kV,, primary transfo, 3750, 4,16 secondary,,4,16,, selected breake System base z=3,75MVA/375MVA=0,01 Pu,,1%,,, R=z/√x.x/R.R+1=1/√15+1=0,066%,,,X=x/ R(R)=15x0,066=99%,,tfo stand 55,% impedance +-7,5,, Transformer: full load. 31,000,no load,load losses, xR..x/RB, - phase fault i3 phase = E/ x,base current IB=3,75MVA/√3.4.16=0,52,,, system x/R,, I1/x=0,52/0064,, x - line to ground i.o multiple fact short circuit duty is 8,6KA sym ,phase fault I@ ,,IIG=3(0,52)/0,055=9,9 - fault calculate check breaker application generator busbar system generated is 7,5MVA,4,16Kv,, 1040A full load IB= 1.04kA sub transient, xd' =11, x=0,11, gene x/ R, 1/X's=1/x+1/x+1/x=3/x,,1/RS=1/R+1/R+1/R,,=3/R,,xsb,,I b ASE phased, 3(1.04)/0.11=28.4 symetrical F/x Amper, system x/F of 30 short circuit duty ... - breaker type 50vcp / v max 4.76 kV at 29 kA max ki//

phased,,,3(1,04)/6, I1=28,4 symethical,L/x Amper ,system x/L of 50 short circuit duty ,, breaker type 50vcp,, V max 4,76 kV at 29 kA max kl,) 4,16kc per volt,,,, . purpose. wiring electrician ,wire way premise, -network protection line , fuse , commutation,induction, network ,filtre, cable terminate motor ,, Cable motor blonde for conductor heart join ,PVC wire copper ,insulator conductor PVC, colour ,control switch , . Current assignment conductor p2= uxix h,,p2=uxlxcos,,I= m light conductor,A= section m,,z= conductivity ,coper z,Au increase decrease voltage ,zx increase impedance load conductor section across area conductor , , Commutation ,command synoptic system panel design panel order component panel,, -program action ,switch interrupted,,logic circuit control diagram sequential,, algorithm,logigram control gate grafcett , algorithm initial start end , circuit principle ,power , -command electronics ac motor 3phase , rectifier, insulator 410 , ,,2000kw,4000v, 8poles,ECo=1800,loss heater, voltage supply rotor ,E=s.Rco=0,222×1800v=400v voltage out DC rectifier ,Ed= 2,35,,E=1,35×400=540v,current DC circuit intermediate ,I'd loss ..Pr/Es=22800/540=422A,,IRM= IR=0,816Od=0,816×422=344A, form facty angle, amplitude wave, En = 2,35Et.cos π, En=-540v,=1,35×480cos π,,,,π=146,4 degree ,,,line current 480 V rectangular amplitude, 422,RMs,,I=0,816,I'd=0,816×422=344,, --- current transformer water ,RMS,,I2=480v/4160×344A=40A,,.,, -Motor rotor 3000h ,4160,900r/m,60hz, pump connected voltage 4160v bogie open 1800v,transfo 3 phase connection insulator motor developed 800kw ,speed ,700r/Min ,, s=ns-n/ms=900-700/900=0,222, water ,110, Design diagram: Motor AC squirel power nominal of 25hp 1760/Min ,480v ,60hz, 18A cyclo convert ,200v,60hz,gate cycle ,VRM supply,Ea4=14,5HZ/60hzx480v=1160v,, efficient,= 14,5hz/60×1800 r/Min =435 r/Min,, voltage Crete order wave factor ,,max convert voltage , E a =1,35 E cos π, 54,5 degree.. - machine AC DC transformer open lab system game completed module workshop test practical didactic panel experimental Rotor board 60 mm/, 8 tr,coil 1,5 mm,2 pole ,20 ,total slot shoss,, test speed , power 100-240VAC, 50/60HZ, means vac / vdc0-65 v, IAC / iDC: 0-20A, speed ,0-400rpm ,40Hz ,0-600 rpm ,60hz ,rheostat rn4x250 ohnm ,80w condensatir 3×80 ,v rheostat ,simulator,, -molding construction D: 900×700×930 mm, stator - rotor molding, - expiremental voltage out +15 VCC,1 a protection short circuit 12 VC,24 VC, generator sequence amplitude 5 v Freq ,1 Hz to 1khz , generator variable logic true false , 30 v, tracking,fixe double charged, current Audio signal, - MOSFETs control motor Serie universal command, Motor generator: principal 12 v,3000 rpm,1,2A, 3,2 cm charge sustract multiplexer,logic numerical ,4 and (2 input) and ,3 output ,12 and ,input,4 and (4 input) , 12 diode silicone, 8 resistance ,5icc, study ram random access memory flic flop , timer ,stockagr information pan el 4+4 buffer , 3 step scale registrar ,buffer ,8 bits , decoder of 4, to 10 line ,ram ,, 1024× 4 display hexadecimal analogic ,8 bit convertors,a 8 bit ,potent 10v source , bistable demultiplex ,4 flip ,compare ,4 cannot register, - calcul arithmetic ,16 logic arithmetic, 16 logic ,4 bib ,comptor ,decoder EPROM,8 send led level ,lineare discret amplifier relay ,cablagr structure cabling, test execution system mesure network wi Fi transmission 54 MBS,16 DM ,, Engineering therapeutic,multimeter ,3 and 4 ,voltage cc,400 MV,4 autorage, oscillator double ,automatic, , - energy balance 10 bar ,400 degree, super heat , generator 1500 kWh DW/dt,,o,5 conservation Δu=Q,, m(u2-u1)+mg(z2-z1)+1/2.m(v2.v2-v1v1) kinetic , into dv ,pva entaphhy ,m(h2-h2)= Q, Δ H+ΔPE+ΔkE=W, w = into P.dv,,w = PAV.. = 1×10 exp 5 n/m (264-1,69).= 95kj/s, force derivation force conservation Vector F= grad vect .EP , S= sum Q1, Energy balance thermodynamics, W= m(H2-H1), 1/3 mg(v2-v1/a,,= T 1=100 degree ,P1= 1 barb,V1 = 1,69m,,, Mechanical design process.. -calculation copper cm cubic concentrator sodium mol / DM cube ,,2c+ 4,I---Cu2I2+I2,,,I , Mineral composition ,mineral , formula,composition , LF .. 11. 2. Dhet vs saqa qct ,, Practical work experience lab workshop,workplace industrial compG y trade Purpose machine manufacturers. - Namenclature and nameplate information ,DC motor theory, disassembly and inspection,testing, armature, commutator,frames, ventilation and accesoir,motor assembly and final testing,on site troubleshooting,faillure analyse ,carbon,brushes c,current , density and performance, installation,startups d baseline information, operationel monitoring and maintancd motor and baseline installation data ,,how to read motor. Nameplate,motor storage , how to rewinding ,140step disassembly motor wipe off ,remove the motor take motor , tips namel nylon and polythane .magnet wire electric motor insulation papper, utility knife wire cutter ,flate blade screwddiy pliers,lint free cloth aorkglo e, , Motor rewinding process, remove winding , remove insulation papper clean housing,burn out tenant of insulator, prepare new winding ,insert new insulation papper burn out of insulation,prepare new winding on a spool,insert new insulation,papper house the housing ,solder and insulate winding end , tie solder varnish wind reassembly motor test, analyse 3 phase ,3000,rpm magnetic field ,motor board ,motor inscription board ,motor nominal volty, nominal,of rotation,R +* frame1,5 ,calculation parameter new winding Diameter internal ,external .mm cylinder slot, package dimension of iron core ,measure length stator package IP 87mm,external diameter stator packy Dv =755mm number of stator gaps z=24,step calculation paramet,now measure dimenst of statorslot width of slot,b1=6,621mm,b2=8,5mm,heigy of stator slot,h=13,267mm,opening of stator slot Bo =2mm, height of slot neck a 1==0,641mm,toot width bz=3,984 Qu=π/B(b1.b1+b2.b2)+h/2(b1+b2) e=Qu=πb.b/4+Hb.. -calculation number of poles= 60.f/ ns=60.×50/300=1..speed, (2810), -calculation poles step , T= π.S/2.p=3,14×75,5/2.1=118,53mm, pole step , -calculation poles surface, Qp= t.lp=11753.77=203211mm sa, calculate pole surface, heigh of lamel mm,type isolation ,papper lacaue, Calculation the tooth length Hz= Hu+a@=B,#67+0,6712=@3,908m,,Hz - tooth length, Hu heigy of stator , - calculAtion height yoke stator , hj=1/2!Dv-D-2.hz)=1/2(128-75,5-2,13,908)=12342mm,hg heigh of the yoke,Dy external Disney, Calculation the cross section of teeth of poles Qz = z.bz.iz/2.p=24.3981.80,04/2.#=38,237 cm Qz one tooth cross section,z number slot,bz width aualition of slot , Q4= π/8. (b1.b.#+b2)+h/2(b2+b2)=π/8(6,64) exp #+ (8,5)2+6,33/2(6,62+8,5)=93,4mm, - calculate number of slots per pole an pole,aaq= z/2.pm= 24/2.1.3=4, number of slot per pole ,z= number of slot, step in t = z / #.p=24/2.1=12, winding factor ,q 1 to 8, $ 2, $.. , Calculation of induction in teeth of stator ,Bz=Bzr , Qp/Az. Induction bzbzr induction in gao, calcul inductt yoke, bj ..Bzr.Ap/π .Qj =. 0,65.103.13/π.9.88=2,15T, induction stator yoke,bzr induction air gap, step calculation of magnetic flux pair poles ,d= Bzr .Q.p.10- exp 4/1.5 exp 7= o,oo427 e ,, Flux magnetic per pole Webber, - calcation of the numbers of turn phase W' = 0,22.uf.a./ d.f.e= 0,22.230./o,oo427.50.0,958=347,39, w calcul number turn , if phase voltage v , a number of parallels branch, flux magnetic,step calculation number of turn in site ,Su = 6.w/z = 6,247/27=62,75, 62 ,su calculation numby of turn fillings, -calculation of cross section of the wire , wv=Qu.fu/su=93,4×0,34/62=0,512 mm, wv cross secty of the wire Au= surface of slot, , dz=2.√wv/π..3.√0,512/3,14=0,807 1.Award degree diplomat:award degree diploma .1th,2th,3th,4th NQF national qualifications frame work NQF.,1,2,3,4,5,6,7,8 diplomat framework regulation documents bulletin subject Documents Portofolio meeting sa saqa I'd standard criteria Engineering electrical meeting in RDC leaving diploma bulletin, statement leaving .. instituts Saqa exam award documents police criteria meeting Documents, engineering n electrique Purpose documents 24month Working Release : Diploma certificate document submission high degree diploma Consentence .consent purpose award degree diplomat certificate qualifications transcript subject meeting required Requirements subject meeting . 2.Subject :no meeting diplomat national Diploma national: n1,n2,n3,n4,n5,n6 Level 4, subject minum nated exam and trade test panel wiring Documents Portofilio process nated Isat process council Nated exam : ,Statement resultat Irregularilarity process final award degree diplomat . School meeting qualifications process continues. No meeting .. Meeting school leavers 3. Outcomes national : Requirements: task theory step input equation operation basic advance operationel mathematics system integration differential derivation fundamental low step system analyse system process fabrics investigate process device, Δx. DX/du=x exp (e expx+e/x)exp x 2, operationel equation input out system linear process force limited different fabric force , v.ra. 3 system equation input ration factories process force different Va vab Task step system fundamental lineaire input force different x .v1=v2×t2/t1..DX/Dy Subject. N.1,n6,. assessment task,mark allocation 310, content module. ,student week completed submit asssign, tools asssessor 100 Engineering practice 240 ,24 month cabling join

fridge armature ,busbar safety db , building On Thu, 09 Feb 2023, 10:44 TSHINGOMBEKB TSHITADI, tshingombekb@gmail.com wrote: 1.National qualification frame work .nqf6 . engineering n electrique and teacher NQF 7, education technology Subject 1.2 .Purpose :statement resultat: Assessment : Credit 120 ,field ,originator sgb, Framework: Criterion minum require scop maximum Tools asssessment: Entry award degree diploma originator ispt Kinshasa exeta it kitomesa inpp dr Congo math info unikin. No meeting / St peace college n engineering saqa , .. pursope engineering nqf evaluation 1.3.Tools assessment. Award diploma n Assessment entry exhibition Statement Policy saqa 2.1.National diploma nated trade Credit 0,5 certificate Statement entry n 1award degree diploma saqa framework Module Policy department n diplomat engineering n 1,2,3,4,5,6 certificate Module topic Portofolio Statement Implementation exam learner Module n engineering subject : Module 1,2,3,4,5,6,7,8, submitted textbook .submitted exam papper exercise assignment assessment Lecons topics Scal marks analyse Lecture output resulta assessment St peace college: textbook note on line Completed week Examinator national papper , Statement resultat outcom nated Panel wiring 3..Careers education department research scientist bono work. 0utcome Discovery Council trade career / council engineering - Institution fundamental theory practical graduat institute foreign career and college basically advance research Trade test Evidence low: difference reasoning test motion ,low required equation basic fundamentals operational plant mathematics integration differential derivation fund's . Low task analysis system equation input output linear process force limited different integration, system fundamental experience.powersysyem electric shop precautions workshops electrical shop absolute, asssessor rubrics, 3.fault find and protected device device control sequence second low I stallation , components installer PVC ,conduct,metal conduit flexible low ,DEP low installation of equipment right tool ox clear safe verification installation, 4, investigation engineering electrical of the low task subject module , 5, investigation fact in issue relevance admnise, Investigation the function weighting of evidence function judge control of the jury market subject,, 6: analyse investigation design system requirements information required force engineering electrical subject module task operationel plant mathematics integration differential fundamental, Lineare. 7. Investigation principle criminal low and substantive due process rules admiss and relevance basic engineering electrical. 8.investigation evidence: collection are recovering crime processing method scene documents organisation processing crime final result sketch. 9.admbistration communication skills assessment stress skill engineering, Information manage system , Framework regulatority legislation mandatory engineering power arrested civil implementation, delivery report anual engineering electrical l, 10. Training security skill development registered assessor admnise progr engineering safety keeping documents inspection and power inspecteur offence and penalite.. Up electrique the assignment . Criteria questions,poor behaviour,suffice,advance, excellent Low integration police security framework 11.verification sasseta. Durie development low power systems shop tools precautions workshops low rated investigation tpm engineering maintenance fire arm integration in crime scenario police framework regulatority legislation OSHA.. occupation health low find fault and protection device control circuit sequence second low sans installation components fault spark insulator cable low electrotech installation of equipment right tools clear,low motion investigation challenge admnise Fail corporate equation Criminal low substation die process rules admnitrade low informer situation account process determine profitable methods scenario organisation processing sketches,,.. Low supply safety power regulatority.. 13..low council engineering and council trade occupation safety step task creation case study. Low visa permit work council practice verification EIC CEi power systems electrique linear circuit lab DC power supply function work low stand size.motion low agreement, 14, trade association amendment trade operationel system integration foundamental step.input Trae basic advance.. X work operationel factor empires product e exp x logarithmic activities x inconu add divided work exponential x inconu factor linear entry exhibition motion equation trade translate,electronic , Operationel engineering, Test trade council engineering career. 15low examinator skill time table work permit admnitrade time ,time table week time allocation subject , assessment, assignment council trade mark allocation,permit content average 8working 6level 24subject,x work operationel x exp n products e logarithmic actually x work factory lineare derivative integration test low lineare x operatoire AC DC ciy assignment mark weeek ,week DX/Dy working labour allocation work step xEx logic n possibly competency rating evaluation licence Permit permit mark allocayweek.sabs statem. In, vab(va-vb) Motion low service In logarithmic voltage Va -vb operationel compare suply resistor R2,decide by sum resistor Serie R1+R2 plus voltage total step compare difference ial gradients DX DT linear impedance operationel compare logarithmic expontiak, resistance production z impedance over r step parallel operationel permit trade design gn control switch ways to reduce voltage and decreasevoltagrn,,,trade generation equation load cabling equation lineare transmission linear load lineare Tshingombe tshitadi fiston Portofolio evidence low , Case study Cover letter : Tshingombe Tshitadi engineering electrical To st peace college and city power 23 April, 2023 tshingombefiston@gmail.com 0725298946 yeoville, rsa Dear Sir/Madam, administrator training and resource humane Sincerely, for my requested career outcome in academical 2 years training and examination theory and practical for subject curriculum assessment need t more practice in your company ,Courses engineering electrical Work Experience Title/Position city power training /st peace college training 02/2023 - Present , rsa engineering electrical visited work place training experimental Achievements/Tasks award degree diploma saqa/ award panel wiring electrical that my requested for completed experience in your departement and compagny solicite that job for visited site experimental technology and science engineering experimental thank u for your complement and gratituid Tshingombe Tshitadi , RESUME AND CVS Tshingombe Tshitadi engineering electrical engineering electrical implementation time table to job time company experimental trade tshingombefiston@gmail.com Phone Number Education Study Program st peace college 10/2020 - Present , jhb r Courses engineering electrical Work Experience Title/Position city power training /st peace college training 02/2023 - Present , rsa engineering electrical visited work place training experimental Achievements/Tasks award degree diploma saqa/ award panel wiring electrical Contact : 0725298946 - tshingombekb@gmail.com Skills panel wiring electrical Personal Projects engineering electrical visit st peace college/city power (04/2023 - Present) award certificate diploma / saqa n engineering Organizations st peace college / city power (04/2023 - Present) engineering electrical training trade engineering , Certificates engineering electrical/ studies statement (12/2022 - Present) engineering subject n,1n,2n,3,n4,n5,n6 / saqa n diplomat studies final assessment and examination / Languages Assessment practical topic st peace college portofolio evidence low coverage . icass internal and external assessment : relate low circulum more to practical , Project week and allocation time table research : saqa suplementaire subject : Research and project circular assessment visited city power, Student St Peace college company education Career outcome Portfolio evidence low practice assessment engineer electrical, ca Student name tshingombe: Content 1. Scope: research implementation framework study trade theory practice engineering study time table assessment allocation implementation framework regulatory in government. City power and Eskom training center development infrastructure support training train training experimental student case study. Time table allocation research integrity subject outcome more. Department education dhet DBE and council trade assessment integrate 1.2.Abstract: knowledge student case study engineering design analysis investigation field: tendered time table trade ask factor in company overview in city power ,research experimental trade theory research training knowledge city power municipality: job Gauteng city approved I in power electrique metering house home basic, Join venture government development Eskom commission entrepreneurs. Labor health inspector electrique compliance merest manufacture. Saps electrique engineering supply.sandf mil development system defense environment STD physical company security close tendered required safety security electrique factor 1.3 purpose: overview in developing company tendered city power supply: Engineering electrical case study 1.4. Requirements. Engineering electrical

overview in developing company tendered city power supply. Engineering electrical case study 1.4. Requirements, Engineering electrical training time table integrity subject outcome theory license trade .license practice trade .anted test ride panel warming and learning level electrique principal license. Development subject written assessment circular time table self assessment peer assessment class work written projection case study anted module week student 1.5. Task. Ask answers: theory practice visited plant operations experimental assessor in workplace labor. Questions asked analyze overview on subject working in developing training company, answers responsibility sector appropriate sole Consol working Attendance was the factory trade theory regularity and irregularity in sector find material design in classes and sector find means industrial company relate manufacture majority and minority in power plant that means to Create a system to support the training. And support to attendance learner in power city more job opportunities. 1.6. Task Ask questions power to integrate sector training was satisfactory in CVS to gate information for training Power city metering customer need to trade customer technology outcome technology module trade theory education technology trade theory power education circular customer instruction metering customer service energy sale buyer energies electrique 1.7. Step. Need to cost customer power factor theory company customer supply need tax value trade theory consumer supply appliance electrique metering cost maximum demand trade theory rate : Technology invoice customer service energy to make system projection engineering trade theory implementation in demand factor in power city trade supply customer power factor to working training. Question answers overview. Cost home house city appliance electrique rate . Geyser metering training tree phase, single phase metering asking to be implemented time table allocation trade theory 1.8 Operational support rendered Government labor. Government industrial. To compliance Labor: electrique power factor test inspection compliance. Time table allocation Relation education labor technology Test installation Electrique metering single phase .three-phase test trade certificate coca. Checking inspection safety health Machinery occupation health test Design inspection . Description Unit yes or not Tender: supplies saps development load company manufacture in city power Saps student Time: information management system, performance system development Tom engineering St peace college Afric instituts police Practice work Reg : C0700401099 Sars vat :9237228238 Sasseta number: accreditation:111999691949 CHIETA : national certificate in electrical engineering level2,3,4.. Electrical infrastructure and building skills,electrical and building skills, electricak and control panel wiring, Merseta:17-QA/ACC/1311/17.mexhatronics level 3,3,air conditioning refrigerator vantilatiin fitter welding control instrument HVAC, hydraulic,, Nated n2,6,, mict ACC/2014/07/3188.. Computer NQF level, info technology systems,computer I'd exam Saqa n diplomat;I'd 201911130002 Learner faculty CHIETA.sutudent certificate number:COM182609001. ID:2100002023812. I'd:2004007064381. Admission permit and examination time table.engineering study.50110002.. External exam: I'd number instituts college RegNo:2013/034490/07 Dhet no:2019/FE07/028 Dhet exam No:DDP1220/19/00130 Merseta No:17-QA/ACc/1250/16 External exam: Afric trading Sasseta creeditation 112999691946.. Registration dhet:2019/FE07/014 Merseta 17QR/ACC/1312/17. LP R/09/2017/07/0018. EW seta 2093-280525. LGRS-2093-200525. Exam.899992880... Subject. Full.. 47.1.Requireded: operationel subject field saqa . seta implementation Saqa award certificate. Assessment conduct seta Saqa award diploma certificate n engineering.and St peace college training skill.mseta CHIETA.. development panel and control wiring Level engineering electrical.infracture development. Meeting saqa requireded I'd..no meeting statement skill development.id certificate award St peace college .db box outlet socket switch dol motor.transformer. Control instrument mechatronics, Career development city power graduat.implentation .career Continue trade skill supplementary trade meeting month trade . foreman ID: 258968 saqa commissioning domestic or commercial . ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering. ID : 263006 saqa ,demonstrating wiring of premise defining ID : 258937 ,install ,maintain low voltage,DB protection ID116466: inspection and circuit , ID: inspection and maintenance control and control panel and circuit , ID111388 :saqa electrical engineering and construction saqa I'd 67461: N3 code instruction category meeting ,A,B,C,.. Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and energy sector, maintenant,DB, protection,electrical safety cleaning, --scope of work specifications.sans 10142, - circuit breaker ,isolator, contractor and relay ,install Db , inspection Db , ID10607, 10605,10634, -replace fault -ID 116434: control electric network from a control electrical . Centre sgb ,power plant .field manufacture engineering and manufacture. -Switch way panel wiring education technology. I'd ,electromechanic .electrotechnique .. teacher I'd .saqa . -47.2.requirement n diplomat engineering. ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities company city power implementation visited day field manufacture technologies trade. Training - Interpretation drawing electric code graphic. Purpose. Assessment: explanatory electrical plan create electrical plant, Content, with is purpose benefit of electrical, metering city power and St Peace college workshop - How to draft an electrical. - Tip for making electrical plan, interconnection of different component and fixture to the system .in training cooperation. Visited - power line with details such as size voltage, rating, power transformer and winding, the main switch breaker and fused switch, - draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pal building., tips for making electrical furniture light switches and electrical outlet, - Plan for additional outlets renovation, Amount table Lampe, yea, later, appliance wiring plan, -electrical plan legend Calling mounted light, duplex receptacle, telephone outlet switch. - Basic electrical plans, - Patients room electrical plan create your electric plan firm a patient, Basement wiring plan --when listings out item such a feeder breakers and wire size, for particular project piece of distribution equipment, Intern of electrical distribution, -schedules are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire , Project Schedule usually expressed in tabuled, organised self explanation. -typical ref, legend and - build drawing s: Construction project is completed is revised drawing, created and submitted, constructor, high, any charge Initial design drawings. -Construction process completed. . -Electrical drawing and schematic. -designing installing troubleshooting electrical system requirements use various, line represented. - design engineering and technician use schematics to build and troubleshooting -One line diagram: medium voltage switchgear one line diagramed, and power systems single diagram. Is often drawing flow of electric. Typical: major components in the power systems list system voltage, transformation impedance, interrupting rating and fault current just the basic .item -Drawing should be kept. - Main control room of a -switching operation by identifying feeders and the load they serve, - System voltage frequency phase and normal operating position line diagram, - For more detailed view of an electrical distribution system, three line diagrams is used phase polyphone a c, system drawings, connection. - Diagramed show distribution component such bus rise, bus plug, panel, board, transformer, small, branch circuit, drawing alarm, system, -schematic diagram Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel Found, inductor, diode, logic gate, fuses contact, switch, every circuit, -circuit breaker control schematic: Wiring diagram. Terminal for selection terminal, relay, load detector relay wiring diagram. -main purpose of a wiring diagram electrical circuit arrange, schematic diagram, - wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair , -Block diagram: reference input filter sum, controller actuator process plant, distribution, sensor, - arguably ,basic type of electrical drawings block, diagram, components of complex systems,form of block,internnected,block provide a conceptual, idée a process is completed, electrical, Symbol. Represent schema -logic Diagram: current gate and logic gate clock - Breaker failure relay logic diagram. Modern protective relays utilization diagram to represent complex circuit process

.electrical. - Schedules. A build Electronics use soldering. And disordering. System...welding iron, solder, silver, or copper lead, desoldering, plug, outlet, cleaning disconnectorb, connector.printer circuit fabric film microship process. Silicon. Plastic molding... Fit recess .fit wiring .process... Control - Instrument method selector design metering process I Appointment of service provider supply St peace College and city power delivery component lab workshop part time table subject... -introduction global stage St Peace college. -Scopes of project: projection required supplies to purchase and deliver total, -Special condition component Subject module metering 4. Purpise documents. Budgets: a projection budgets St Peace college city power time table fee.burasary.close graduation interne ship fund student.gov -Quotation value tax (vat) project: _time frame project is to commence success bidder Firm price subject, name of the company quotation close Appliance and company subject. - Item description of good part number quantity Evaluation criterion (80/20). -request for quotation number -limitation to quote supply and delivery Item/ description of good //quart///price/// bid price RSA 001 /engineering electrical practice workshop projectile engineering open view lab test lab and workshop practical saga .duet training exam paper .seta. Assessment police //// amount estimation fee Total include .8modul x 24subject x3month 200 projection years amen's test experimental technology. Training integrity one project... -delivery period Specifications required for project: Registration saga assessor conduct certificate. Saga I'd institutes foreign. No meeting institutes accreditation saga decision. Admit /30-39 NC's. Total credit. -assessment policy IE099-IE00.regular internal, Saga decision 10105/14 advance diploma intermediary phase teacher. Conduct... .n1-n3 national certificate engineering studies. -N1: Saga ID6710, N2 saga ID 637375, N2 saga ID 67491...Entrance... I'd saga award diploma N ... Ncv assessment plan isat . 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,.. topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...training exam rwiten permit and time table practice exam days. Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode.. Isat integrity practice..time frame .allocation require .. 41.1..required city power vacancies Estimated ICT service Research inovation: -table of content . Graduate internship Training center employee.visitor student apprentiship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training. 1.city power vacance 2023.for officer special and variations use career opportunities. Training oppoy . Metering guyser. Light city .training engineering career. 1.1 How to apply for city power vacancies 2023... Student career granted. -meter reading submission: St peace college time table engineering electrical Portfolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. Interlock system. Training partnership test. 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Description and information...visible policing crime investigation.specialised investigation.intelligencr information management protection VIP government security regulatority.static security.physical security system tiditechnical indicator technology...perusal registrar system police investigation director. Manual system. objective statement indicating.infrasture development structure plan respect work report is base saps project.. Project poling facility management to maintain. Control system. community service reporting cycle quarterly and responsibility crime investigation implementation responsibility office .the non proliferation of weapon mass destruction act 1993act no87 of 1993..police interviews scenario.... engineering electrical city power electrique metering scenario vs. appliance electrique metering time table low enforcement appliance fire arm appliance customer CCTV radio security customer security it PC cyber customer appliance TV radio bomb missing circuit network vs. city power trade challenge assessment police engineering electrical time table trade theory engineering low non according manufacture and related, : Engineering modules equation algebraic linearity exponential ax by...a square +bbsquare network.... engineering planing components.researxh advanced field generation ,skill explain, development skill components,science natural mathematique,device protection components , discovery ... 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Descrition Unit yes not Key equation terminal of single voltage source v terminal=sum -I re few=R1+R2+R3+RN Sum = junction rules sum Lin =sum I out, loop rules, terminal voltage of voltage source in parallel v terminal, = r,-I sum courant. Time constant t=RC. .direct current current during charging of capacitor, I=£Re-try=Ioe-tRC... Charge on discharge capacitor q(t)=Qe-t,£ Electromotive force, EMF work done per charge keep..the voltage output of a device is called v terminal and v terminal=€-Ir...Rs =R1+R2+,,,,,, current resistance find low him Resistance resistivity length found area resistance wire , copper across... Electric power... P=v.t...p=vsquare/r.. battery to power supplies... Cost..cost = power rating in kWh x number of our it run x cost per kWh.. Home monthly cost appliance every day possible includ dryer.micriwave.tv back ..if does give power give the should. A current.any thing in the socket 220v ..socket is cheap on the power is how much.. electricity continued to increase efficiency to offset consumption.. energy saving are account up being cheaper... 4.2.DC courent direct current vs alternating current ac .. Battery products DC current batteries voltage EMF is constant constant current circuit capacitor store charge current from socket... If look voltage peak +170v decrease through 0 to -170 and rise value 170 really be 110-120 that actually average but peak really is about 170..0oscillating voltage product electrique field..electron response to this oscillating field and oscillating back and forth producing an oscillator curent in the circular.. Graph voltage as functions of time current this average value voltage from wall socket it know as the root mean square,or rms, average.voltage varies sinusoidal.positive as negative doing average..vrms=0,707Vo and Irma=0,707I.0.. Instant 0.606...serir parallel voltage supplied Series resistance equivenlent.parallele... Performance a mechanical inspection and reporting on motor transformation workshop... components main...connected...AC current...Phase diagram...ohmic resistance only v=r.i...I=sin.w.t in phase R..AC ..I=v.sin.w.t.dt..v.i=sin Wtl,,,current lags ..WL =2πfl=x inductive reactance integrated... Operator j with rotate a vector 90 degree in anticlockwise direction 2j=1,j=1... power triangle..S=P+jQ..s=p+jQ...apparent, a=v.i =>Power ...Q=Isqquare..... DC generation...VT=Ea-Iara voltage full load...ia equal is ,, speed e=d|/St=|p/60/n=PN/60.2|60...2flux pN/120..f=p.n/60 sinusoidal AC voltage of factor induced EMF Conductor=1.11xe=(1.11)x(2fluxf)=2.22..emf par volt per phase x no of turn 4.44 flux ..Contactor... Instrument. Magnetic equation deflection's=B.I.l.n deflection torque TD=force x perpendicular distance...a=lxb TD=TC ... Parallel movement must same.. Ish.rsh=I-im ..I=I'm(1+RM/Rsh... V=I'm(RM+Rse).. v=VM(1+Rse/RM..... e=d/dt(II)..... Power wath meter consumption torque balancing energy in the circuit is directed registered..speed increase ..phase error occurred phase difference pressure error temperature.creping TD=TC ..flux =[v.i.cos/(krp)(DM/dflux)=[kdM/dflux].P..k=kRp..p is power consumption..m mutual inductance.teta .instaneouse current in pressure coil resistance v=√2.v.sin.w.t insta voltage ..IP=√2.ip.sin w...average deflection . average deflection... Value estimaton calculation Total 9.provide contextual information established : in city power and St peace college students engineering electrical research implementation trainings appliances electrical fault guyser stove light outlet socket current power factor demand factor mettering customer trade . theory current power delivery to the customer and customer appliance requirements need to trade theory outcom system engineering electrical.true power real power factor regulation system information.metering control analogy digital system sale kWh .metering customer demand single phase tree phase industrial.domeatic . Theory current state previously study trade theory to wiring db box mering client domestic appliances technology electrotechnolgy trade. 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Requirement appointment of plants engineering electrical consultant provision professional services city power and St peace College Anted statement engineering electrical theory city municipal provincial infrastructure visit development projects case study topic Portfolio evidence. 4.1.2 Sub sector manufacture main tenant St Peace college engineering learner assessment outcome transmitted generation power station metering electricity electromagnetic career outcome to visit joint venture city power government. 4.1.2.1 Special IST mark application _ Discipline mark application _roads and traffic engineering, road and storm water pavement evaluation, road transportation and traffic impact access studies St Peace college .relation circular assessment traffic map design, _parking and access studies traffic management .traffuc police. Enforcement low .study material in assessor assignment engineering, tom, Maintenance police technical support material advisor circular assessment guidelines study investigated principal.Nd information management system framework regulatory government Gazette act material design investigation city power with happened and methods research city power traffic registrar research engineer low traffic prevention low. _structure and building cause ways, Culver's bridge community. Stability equivalent equipment policy maintenance design meetings breakdown in the plant system

_electrical: rural electrification substations, network protection and control design. Energy efficiency demand assessment development operational maintenance and tom repaired road traffic engine structure and building criterion plan -demonstrate -relevant experience key personnel - Bidder experimental skill methodology -total point -criterion professional liability insurance R3m for each and every insurance methods research qualifications and roles of each staff 2. Implementation framework regulatory legislation mandatory engineering electrical case study circular time table in visited work components innovation CVS city power Implementation close submitted of course daily tenders note assessment peer and self class assessment discussed note provide services trade skill report phase1,2,3,4,5,6 registered trade test reading experimental close Portfolio evidence documents week lee attendance release resultant statement 5.-2.1module: induction safety hand tools Conductor recall carry section join crimping soldering prepared fault find control contactor... Adhered to correct instrument is used fault find the control panel... distribution fuse AC heavy current motor control open circuit. Short under voltage retain fault single fault application start motor db system .fluorescence installation switch. Following controller main circuit phase squirrel cage induction motor can. Director line ward automatic start delta autotransformer constant torque phase rotation...generator AC machine transmission... commission capacitor starter phase slips according. 5.2.2. Code: recall application section of the training act 56, 1981, Gazette questionnaire exam conductor method Crimping joiner electrical mechanical. No dry joint a damage allocation. Specification insulator testing instruments cables make off core PVC armored MMM core high voltage gland ferrules and used to accord joint rating termination...sibs 0142 identify ply cable 100%,test gears circuit machine protection. 5.2.3 Objectivity: relevant color marking and correct use sibs 0140 hand tools identify checking forming character gas weld working piece trade correct according tender number Chain block ton max shake ton sign work select voltmeter ammeter energy meter select safety Identify electronics compose wire wound up to metal oxide capacitor ceramics diode transistor thruster %100 correct Solder 2.4 criteria recall the operation of different type of battery identify various type correct maintain according. Manufacture electrical system f connection applicable auto electrical... fault find auto electrical all safety aspects adhered to. Correct according manufacture check and adjust correct procedure settings manufacture camber and... Correct process adhered. Teat correct stable multivabrator use dual wave form DC AC average value peak frequency rams frequency all reading be programmed p.l.c ..6.1.3. Company requirements Specifically theoretical pass requirements mathematic and trade theory subject employer college apprentice relevant subject n1,n,2,n,3,n4,n,5,n,6 n diplomat saga award n body quality insurance assessment. Trade test and council engineering. Applicable value point relate years experience , certificate trade ,5%cleare time frame project, plan training clear roles response, equipment workshop, including.restrsint 6.2. Engineering n diplomat duet career and engineering n diplomat saga qualifications criteria time table n1, n6 trade engineering subject career mentoring outcome subject engineering electrical electricity .college implementation n subject... mathematique,engineering science , engineering drawings.trDe theory electrical,electrotechnolgy,power machine, engineering physics, chemical engineering department.outcom industrial electronic trE test theory.logic control practice learner level infrastructure construction electrique..Outcome engineering electrical career generation, transmission electromGnetic level continue.isat integration practice engineering lab workshop experimental...time frame framework. Practice theory integrate assessment employment saga qualifications Engineering n electrical criteria instituts,sasseta.employment compagny trade gov career graduate internship close city power careers.eskom career training career graduate saqa. engineering n electrique field panel wiring electric . drawing electrique,control logic .cable join .fridge.substation .generation motor .work 24month qualifications.categogie career mining gov and labour examination expiremental, guide .. .city power network metering and partnership Eskom generated transmission with appliance need. Consolidated for students have time table to visiting reading...security system information access studies or traffic police in building city power, regulation with student accreditation seta sasseta assessment police or circular to working database system entry visited in and outcom student visited day week . Attendance for reason study in trailing BT's city power card passport visa tourism negotiate career graduate student. Visited is individual self assessment student career. And class group school assessment coming for extra visited or large attendance... Access control ticket for interview career asks or donate individual research things student knowledge individual... .7.Labour health education for engineering in plant...labour mining examination student examination safety to prevention hazard or any dangerous incidence student labour give permission for engineering to visited plant. Coed if for insurance when is problem to health machinery. In compliance electrique for trade labor national diploma they are covered by inspection labor 7 .14.1Mining qualifications categories maw give permission to visiting categories foreman tradman electricity mining industry. Hazard exploinsion fault discrimination detection exposition mining plant solutions permitted for trade mining they are covering visited .power mining coil copper etc 7. 14.1 Dti industrial trade gives that permission Department education and go department. Any proliferation for trade. Development infrastructure for student's .city power cable trade in appliances Coverage human resource city power can be claim to data labor department mining department for student visited extra time work over time on training city power space municipality...power explosion...government....steam mining geotechnical investigation earth discovery in natural they are covered insurance student visited places and personal trainer learner working visited electrique engineering.. Technologies science innovation. 8. 19. Purpose design integration. City power. Study information on line career. Home customer, tender city power career. 19.1 applications for electrical services responsibility for providing electrique service to property owners in the city power. Billing service division two categories namely small power uses sup and large power use plug electrical services connection no greater than56kva in general type of connection. - Apply to convert a sup form post paid to prepaid Billy Apply for new prepared or postpaid dupe connection. -apply for a new connection. Region revenue... 9. 19.2.. feedback.guyser control, meter reading.schedul.tarrif info, prepaid vending, energy type, fault Loggins,load shedding, library, claim,tarrif info, tariff library , monthly meter ,meter reading, 19.3 meter estimated... Company secretary m smith. Executive director, .. Registration number 2000/3005vat numbers Insurance claims form electrify account number, prepaid meter street,code,postal address, city power number, call centre , description of how the loss damage, occurred insurance repaired replacement quotation . -leadership seniors management team, compagny.media. -theory city invention metering city old metering power.daig business with city power, Supplier vendor providing services, - company awad.compagny registration, originally tax pine, relevant,I'd,direct,B-BBEE,tender. 10. -20.Hearing conservation programme. Training awareness and induction programme attanded.noise exposed registered audiometry.during induction. _content ..loss, regulation city power -trainong shall cover, Content and scope training of the ihl regulariion records .10.-21. request for quotation Name date post, closing,tender, description, additional, business plan, quarterly report,AGM,red year report, annual financial statements, service level agreement, staring period, endings period. 22..Application for electrique supplies stand number, township, building name, street address type use, residential, commercial, industrial, Customer account.customer meter tick -New service connection. New service connection, single 80A.tree phase 80A, prepaid convention.other... - Convention single phase 80A, smart metering, repositioning of metering single 80A, -up grade download of supplies existing am requesting.new meter box boundary existing cabling. - city power agreement supply of electrique applied for is govment by low application liability according, routine monthly read, notification, connection, connection objectivity, registration,name domestic customer service connection not exceed 56kvA3phase ,80Am to supplies R1200, outcome. Customer log fault Measure the power of learning and criterion are registered trade mark of education testing services. prepare for criteria asservissemnt test exam skill. Discover practice full. Employment testing services are design engineering aptitude minute test design, criteria Type, test measure

trade mark holder. License electrician assessment, apprentiship.license electrician theory and license practice. Wiring meter box sub and switch boor, men system, comment licensed, week basic licensed including readings comprehensive test numerical reasoning test Trade apprentiship.problem reasoning perspective math.mechanical.electrical.physic. Questionnaire company qualifications question theory electrique test power current. 24. Fault find and protective. Control circuit... -Installer rules: PVC flexible conduit isolating switch correct factor Sep Cable burette, depth cable, cable installer. 11. 22: metering error connecting prepaid, over load, no power accident on appliance power metering consumer procedure claim fraud crime metering Logged call, off metering minutes, City power and Eskom on line metering recharge prepaid: Compared metering old analogue indicator kWh day daily check by service accountability kWh building account energy meter take 1day20kwh room house estimate ×360days7200kwh years energy heater consumer indicator safety key lock metering analogies reading value 7200kwh, to rand cost Bill discount prepaid cash metering return back tax vat customer consumer building large medium tax redistributed 3200kwh real amount prepaid on metering digital. Customer's pays money 10rand have 3kwh to 5kwh, consumer readers .. electric wiring factor building installation electric and appliance design supply need real time cycle for that discounts technology cable police respire main tenant old cabling equipment years 10yrars replace cable high voltage transformer to cleaner reactance synchronous machine on designing reader's kWh 7200khw coverage policy main tenant check point kWh lighting was default fault appliance claim and fault old system design by networks system city power in interconnected news building and account nest number industrial news technology need to claim visited plant,,tpm engineering design AC DC current step task creation operational curent assessment 24. Purpose comparing estimate: Designing and investigation: electrical power transmission network: protected and controlled high voltage circuit breaker inside electrical grid substation relays scheme can be complex. -oil minimum circuit. -overloading excessive, curent not due to faults, -short circuit fault between phases, short circuit, 24.1 classifications - Oil circuit breaker OCBS, vacuums circuit, -SF6 circuit breakers -air circuit breakers, Oil tanks in oil circuit breakers or normally, oil is very good insulator has high dielectric electrique strength, cold oil is able to act as on insulator, C... design Good quality as below, Good heat transfer Quantity Short arcing time Comportment -high voltage used service, on circuit rating 600v, standard 4,160to 765,00v and 3 phase interrupting 50.000to50, 000,000kv, Electronic symbol circuit breaker... Transfo MVA, found in substation 600MVA, 3, 6 35 kV industries, -switch disconnection. Use control section switchgears panel... _Construction...bulk oilcinductor bushing, fixed contact, moving contact operating, Vic vacuum circuit breaker. Oil circuit breaker less risk, SF6 current breaker very less, - Mechanism operational, insulator, arc contact, frame lane contact, hand operator, electric solenoid, frame, Erie tropical, SF6, high sulfured fluorite, is air interrupted... 12. 29. Conceptual problem conception assures efficiency conversion of solar, steamer thermal hydroelectric renewable energy electricity lower acceleration rest... Integrated concept light draw power consumption.heatet calculi power dissipation operating bulb time costrb, cost appliance electric fusible. -Rating fusible high voltage relays protection advance: Z, impedance cable breaker tranfo, conductance fault detect 12..Generation resource .network transmission system Time table engineering science .physic engineering chemical, electrical engineering. Mathematics engineering, apply to the career outcomes skill to make a agreement arrange power city training visited engineering estimate resource internal and compare additional system explain reasoning engineering in point 24. Mechanical designer process equipment, area removal. Physic engineering .area...A1= reinforcement area jacket steam . Descripton unite Yes not Designing plant and economic chemical engineering and physic Engineering limited for corresponding limited years analogies computer. Specifically internal energy u to system robe do/St rate kinematics rate input to system (U1+g1+1/2v) dm1/dot... (U2+gz2+1/2.V saque).DM square/DT (rate of energy input)-(rate of energy out)=rate enegie chemical plant large quantities heat 150 degree Celsius ,1000kwh shaft delivery steam turbine power... 10 bar /400 degree Celsius..generator 1500v.. Diffuser,super heater .. dQ/dt-dw/DT=F square (H2+g.z/g1+1/2.vsuare)-f(H1+9z/g+1/2vv2.v1 square./g) Initial interest rate percentage n program computer print out following in job map ..voltage.. Emergency system energy .compare Electrogene group motoring test compare fuel supply direct bore store 98,5/1040,,cubical capacity 3200cm square, compression ratio 17,oto1, valve gear d-0-ho valve. Engine output max power peak150 kW,118,power peak redli e 3800/440^{0},mac torque n.mm343, torque peak..test Applied thermal engineering fuel tank Nth=hbh/htx100,,,swept volume. Vs=π/4 .Dsquare.L 100liter, pay load 756 .homologated, Warranty and service 3years kWh ..kmh rpm engine power 3800r/m power/mass(w/kg)61 Power/litre kW/h38,torque litre NM/l (P.V/T)n.t=(P1.v1/T1) working .volume of .head...low conservation transfoy in system Audit overall applied calculate efficiency work.donr.Ew=F.d. P=E/t....Ek=1/2.m.vsquare.Ep=m.gh.. E e=v.i.t. Eh=C.mΔ.t.,. efficiency ¶= energy out/Energies input....power output/power input..low Estimation system 13. 21. Engineering systems modelling N assessemnt for engineering police in St peace college was covert by lecture note and sylabus reading Introduction topics lecture note.and policy overview St peace college orientation guide and visited city power policy training circular note key learner apprentiship work job career. 21.1 framework and tools : scientific assessment making model exhiy -framework science police . Engineering electrical innovation Portfolio evidence Implementation in city power training complain claim police case study training recall resolve conflicts safety security in city power science analyze student case investigation.scenerio in city power . -Framework precautions : student prevention safety trade machine circular time table training city power learner prevent precautions visited development work study conducted trade infrastructure -Projection: precautions preparation frame study. Air polutioning science natural. -Project checks point gate point assignment engineering electrical: - Case studies: engineering electrical council engineering and trade council labor analyze in government city power framework regulatory legislation: mandatory legislation police power and mandatory engineering power constitution go Gazette power attorney to work empower development learner -model 14..22. engineering electrical: specifications of machinery equipment. Motor machine generation battery need to made verification load cycle., duration electrique,time ,duty, continue operational ,periodic cycle consisting cycle of a time of operationel,load and time of operational at no load there is not time energetizer and recycling and reacting in cycle duration factor,100tn+ v load cycle. Duration time electric lost electrique breakdown, on period operation load time inertia factor breakdown=power receive methods effective load applied to the motor thermal relay contactor _policy maintenance engineering remanufactured tom cleaning meeting do check action take activities equipment breakdown re valuation. System products city power breakdown energy metering guises break down .student breakdown exam weekend over load. Operation excessively.net operation .time net, 22. Engineering electrical planning organizing days shift task activities development system .day visited city power week.week.week.week. CVS Step task check revision Electrical engineering.ac DC machine engineering. Motor generation machine conduct move DC generator operator satisfactory a motor fundamental speed equation in put output, -parallel circuit distribution engineering reactance resistance impedance suspectance reactance total admission power factor circuit problem. In the find -Tc parallel AC generator balance magnitude heat, phases system: P√3.E.I cos phase power transmitted two receiver two single phase ,transfo secondaire A.load circuit source,If√4.I/c non oscillator transient. AC ,time of the rms I/√3.Im.. Company Serie circuit power distribution total suspectance,admistance,theory Engineering,zA,z,B,zc,,(a+jb),,,(c+JD),,(f+jg).. engineering capacitor operator angle free. Development Serie resistance impedance equation compare loop linears ,sum junction R1+R2+R3+.....series 1/R1+1/R2+1/R3+...parallel .z1+Z2+Z3+...1/z1+1/ Z2+,1/Z3.../G1+G2G3+..1/G1+1/G2+1/G3..../gradient vectors Developing Ra+RB+Rc+=Rsh V(RB+RC)=v(Ra+Rm.. RB+RC)(12- Im)=I'm(Ra+RM)R(Ra+RC). =I'm(Ra+RB+RC+R)=I'm(Rsh+RM). Descrition Total unite Engineering,zA,z,B,zc,,(a+jb),,,(c+JD),,(f+jg).. engineering

capacitor operator angle tree. Development Serie resistance impedance equation compare loop linears ,sum junction R1+R2+R3+.....series 1/R1+1/R2+1/R3+...parallel .z1+Z2+Z3+...1/z1+1/Z2+,1/Z3.../G1+G2G3+..1/G1+1/G2+1/G3..../gradient vectors Developing Ra+RB+Rc+=Rsh V(RB+RC)=v(Ra+Rm.. RB+RC)(12-Im)=I'm(Ra+RM)R(Ra+RC). =I'm(Ra+RB+RC+R)=I'm(Rsh+RM). PMMC..is essentially a low level DC , parallel instrument..VM=Im.IR... -Engineering transfor system.comparing power distribution assignment watt output average output current wave line secondary statement a(c). Delta, delta start. Start delta start star. Zigzag delta zigzag star anaphase...auto tranfor .courent voltage transfo high voltage. Equation load circulating switch transfo.balance load application of.postef Electric technologies 14. 28. Compare training assessment and assignment engineering electrical to implement time table workplace workshop academic in trade social city power design factor training 15. 28.1 requirements: subject and module: -supervision in industry - Industrial orientation -industrial organization trade theory electrical, electro technique mechanitechnique language compulsories a, language business saga NVC level national... _anted :for subject engineering: Anted care educate training facilitator, and learners port Practically college academic: philosophies practical school guideline employment learner -28.2 what are didactique strategic investigate multidisciplinary. In development goal construct training materials and evaluation, how the model is didactic expertise as aspects education didactic of instruction and facts authority and telling authority written.: implementation circular St peace college didactic material framework regulator tools assessment for learner and trainer system information, file material metering to material didactic city power and Eskom material training education support .method measure instrument of evaluation. Visited p999ortal career scope assignment goal value cable population city electrification attendance is available. For employment 29. Methodologie .more -Orientation guidance school ,organization lessons ,compares organization supervisor industrial in St Peace collie regulation City power training: -Lesson plan grade .and class engineering technical Grade 12to 9,, engineering nated classn1,n6,. Level 1,4 , Lesson plan technologie - education technology matric and trade Engineering app video course ressours. -projection orthographic.. orthopadagogic , orthographic isometric Orthographic drawing, -activity , subject area orthographic projection is a technique used spatial vision three dimensional object,can be convent, -Lesson plan it association of training plan : projection city power light metering ,gysez planing and subject module required trade theory electrical module .wire premise power factor consumer plan.inatruction didactic form city power assignment: -Orthopedagogy pedagogic Module week: Daily 5: planing and preparing lesson to include -view lesson planning is critical activity for prepare Childress High phase Templars described. Key component : city power care training practice. Explanation overhead or projector used keep. -lesson plan: is a document that outlines the contents that your less step-by-step student teacher Lesson plan is usually prepare in advance either cover one off , activity,entire lesson , Lesson St peace college unity in trade training Day visited week visited.primary include activities -lesson plan: board city power metering days care visited St Peace college module subject integrate Portfolio assessment Activities. Objective lessons goal feedback science lessons anything from, experimental to monitoring or to diagramed Lesson plan run smoothly. -provide reflection: in the lesson greater way.. Lesson metering system city power goal megawatt and city appliance compare lesson module plan at peace grater. Break project down .module time table visited plant operations and break.sectiin checklist, Learn number life student complex, activities all orthographic drawing quickly grade level (9-12). Required 45 minutes subject area geometry problem solving share bottom shaped 3D objects copyright engineering are connected, activity view isometric, Pre assessor drawing challenge.. Circular police assessment. -management system information: In St peace college and integrity police system saps and city power , technician indicator persal personal police employment system data base.polfin police financiaire statement, training goal product humain resource and Indicator number titles -indicator building management implementation Indicator criminals dismental lab , Career secret purpose involvement laboratories indicator laboratory indicator training incident system support evidence report directors t implementation.... city power indicator trading lab record keeping finger print training student and St peace subject record clearence visited day working to report crime togheter,,,,method research crime evaluation in time table script transcript component fraudulent module appliance in city power and report over load required. _29. Teacher vocational: guidence counseling interview verbal communication career design in training city power and St Peace colege learn more career outcom engineering electric subject nated exhibition engineering generation transmission power station.electrician engineering to city power engineering career Questionaire design what is leading to pursue a career counseling have excellent written and verbal communication skills approach counseling assistance stator management attorney audiology ..what are the communication skills communication,wath guidance counseling characteristics off effective guideline counseling interview School may be focused on graduation and , career, balance career teaching that employee look for candidate, including college professional, Caracteristique Component Company engineering electrical: design generation transmission in training power metering design caracteristique level . Stability. And with the principal key power: load over load rating , switch, Company.. 15. -29 required management trainee class and company training How to management and control during teaching -how to organize teacher filing cabinet training room trainer room libraries visit to . How to organize a lesson plan . Trading Material , library training and report form city power organization, implementation trainings and St Peace college textbook reader module trainee Description management and control a class during your teaching filing system form city power Eskom, compliance form issue filing day week evaluation and certified lemons instructions metering Assessment functions 15..22.Requirement: implementation and stabilization to training visited trainee engineer, education..Anted examination training and labor inspection work inspection police inspection school ,compare industrial city power go inspection -general inspection category: and training schedule, Carrier training adducting modified I is additional training practical applications, -cycle of training application auditing , visited plant operations ,Step may take long or short time completed all operator must develop the ability to detect the ability detection abnormalities positive result achieve by student visited places working training system main tenant power city equipment in good condition and St peace good performance examination time table assessment, -autonomous inspection step 1,3 tentative inspection standards compared reevaluated to eliminate, detection and treatment of abnormal condition, Minor servicing of machines ,molds, gigs and tools . _29.1Organisationtidness, autonomous maintenance. Focused and elements: - Operators responsibility organizing stand for operator responsibilities adhere to recording.kwh -focus work and element promote organization and eagerly operation visual control work in control process product kWh / reader. -measuring instrument and foil proof device, element inventory measure instrument proof device and make sure they functions properly inspection and correct deteriorate kWh metering city power training is work , -focus equipment precisions ,operators must check precisions of equipment kWh metering geyser is précis instrument, -operation and treatment of abnormality, 16.Requireded hearted meter energy breaking component .destruction. Conductor.insulation.maneticfield . kWh/ ..joule input copper wire..component heater Peltier .break.explosion system, limited stability load . circuit breaker load heater Peltier thermocontrol....metering limited breaking , Air cooling system breaking linear systems circuit wire cold.component cold ,,220v .6,6kv..Peltier heater load 220+20volt Peltier 240volt reactance heater system.. Operationel, wrote: 34. Required: labour training quality body assessment,driven machinery regularite safety 1993,acting in term code practice., director. 17. _ content training city power and St peace practice assessment.quality body insured,duty authority and duty acreditation.saqa and sasseta institut sets mseta seta labour skill development field of activities. - training system record detention,time table subject learning reading Lifting machinery .and machinery manufacturing management. -codr description. Counter balance lift true ,rated capacity of 3000kg reach lift truck..covoyer logistics lighting ...order . Machine code compagny capacity . Pre start check

detection , Pre operationel test in control,total item uncheck theory ,penalties ,UN heked,Pre assessment X2= maximum, Total Pre star and operationel, practical x time penalite item not specific ,penalite,body stack,fail stack correct position for travel close remove close down total operationel,time .insurance logistics.transpirt Riggin material construction supply... Drawings explanation: building compare St peace college knowledge design analysis investigation.aystem engineering and trade theory Designing system engineering electrical drawings,mechanical drawings, building drawing . orthopedagie . lesson.orthopedagogie.system module activity.. reproduction analyse design. 18. 32. Required operationel Appliance customer to city power and more St peace college time table reception and attandance assessment engineering, direct energy conversion system. The direct PDC MHD conversion system s. Plasma dynamic conversion system is a method of conversion system is a method of converting thermal energy plasma in to electric power without magnetho thermic .display energy bulb electro tube basic electrical energy government watt solar she produce 03to0,4 kilowatt, - insure generated energy Lab segment development. Power of about 93kw, government RSA provide 50 watts solar home system rural bee20-30%renewablrs variation analyze method, input data, Input scenario energy demand yes supply option yes ,use interface ,mesa database, reference energy ,tech coda parameters,messa gematrix , emission, new installation, result storage data ,option for supply electricity rural homes area 0,4 to 0,5 - Department of energy found total uncle trifurcate house rural unelectrifier, Total population 0, 31x061=<5298 millionxo, 32x0, 62=1000, projection house hold bee 19. 33. Thermoelectric effect..generation product natural appliance vs metering effect energy. Dc. Vs PWM supply type recommdation manufacture comparison of two technical control lin 25k ears vs system . I/max when dt <25 . I max should there 0,33, I/max ,dt >, I/ IMAX should ,0,33-0,66 IMAX coefficient of performance,CoP=QC/pel Performance vs current, Thermal controller heating, Linear vs SMP tech controller 12.A up to 2x16A., -33.1.Design process: -Estimated heater loard system appliance and power total _define temperature.appliance and metering power system -choosing a Peltier elements. - heat sink - calculate - temperature sensors -powe suply requirements - Thermo electrical cool & Design a complete system estimate appliance guyser ,fridge and steamer system -Thermo electrical material build . Operationel principle, construction desig material, Designing -identification guyser stwMerter -caracteristic,metery Ie Benefits: function heater exchange, uses consumer production industrial , science. -object yes , metal plate yrs, Peltier yes Q,heater sink yes Q.rth ambiance, Estimation load dynamic,dQ/St. Load QC transfer THS heat Tamb+ΔTSH [K].dt=THS -To=Tamb+ΔTHS-T0 -COp=QC/pel..Max.min Pelton dI..IMAX=68k,Imax=5A,Vmax=1,5A, current and voltage,I=IMAX (IMAX)=5Ax0,45=2,25, V= pel/I = 16,7w/3,83{7,42 Heater sink elements we need knowledge, required heater rejected vs current Qh/ max=max=0,6.. Qh=Qmaxx0,61=41,. .. , Operationel 34.requirement metering Logic system Min Ter max term . Control logic loop Analyse function asservissemnt,radiotech radiostasie. 35requirement operationel , information management system,, communication skill admi telecommunication computer ATM air time metering design transmission data system policy Control source traffic function Arriva -Policy map input voice class voice not gateway interface ethernet, Service police input research priority yes, -ip on existing -inputline wath -policy output data ATM . Class default date, use ,attack ,account,queen, delivery,dial session, description, switch port access, describe rout age, passerel.police regulatory communication metering appliance vs metering city power communication data systems ATM process framework regulatority.over load transmission.dischage bill delivery, plan number control , government implementation gov taxation government .. Police detective microcontrol VDC, Di/DT, fault.. -- 33.2Required.analyse circuit system lineare limited Saturation vinput v output.permenent network input output meseare, Qmax,e(t)=u(t).s(t) System lineare relay delay position circuit analyse metering heater guszer . System aervomecanism position.plc Mean...e(t)=e(t)-r(t)= Input output .. E(t)=E.sin.to S(t)=S.sin (Wt+f) DC system transformer tension speed e(t)=v(t).s(t)=t.wt..command v(t).. Equation different linearity metering input system output system appliance .. St (St).v(t).A.(t)=w+w.. Database data send kWh rather system send kWh ether reception transmission telecommunication..policy relay delay discount value 10@r,2,5kwh ..input 10kwh 10rand buy system 8 rand transformation system asservissemnt.retard line power cash time arrival policy network.. system gov, Metallic layer fabric oxyde metallic alluminuim material R=¶.l/w... PCO=vcoxl....Vco (iMax/2)...n (po/p1)x1000;;; vccmax -vcc/vcc Requireded : engineering science physic chemical.. electrical..power machine : Construction architecture design file development.system input unity, control memorandum ram Ron outputs CTR display print, - data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram .. Engineering potential coefficient result and reducing voltage integration buy factor 3/5.initiL x = chart capacity .evoltage voltage solving different equation, 5 DX/ St+3x/5.equarion incase voltage DX/DT=3x/5.reauired output integration, full scale voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =31×0,2=0,2 A event bit D/A delivery an output current, 100mA,let B=10/20=0,5 mA ,,1110=29×0,5=14,5 Analogue computer camparebdigital computer .. Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binairy number changing of by simple add kissing course shift language data general ..wireless communication . Metering and supplies electronics . Re R=¶l/a...π. d.....s=2π/d... screw..join cable make conductor...gauge...cable Density.volume.. d section across voltage mass cable kg , volume cubical cable cm square , area surface , meter cubical. Copper.aluminium.zinc.plomb. Oil .water .. Join cordon cable ferulure.mass join step make conductor . Skin effect ,Courson effect,joule effect Resistance to power current. energy.. P=R.I. T.... -test cabling material stress test eprouvet MPa cabling effect deformation elastic plastic .PVC polymers polyvil caotchouc .insulation papper material insulated cable join .plastic 220 volt Plastic.ceramic insulation high voltage glass 1500kv F= Qa.qb/r... €.... Cable Mechanical resistance alumelec..maichor ..transformer join Conduct hearth Deielctric.isulator charge discharge cable .high voltage discharge short circuit.. Magnetic material.,field electromagnetic Insulation conductor magnetic hysterisis ferromagnetic, H..b.i.u.,. Coil making .. Number support kV..number substation. On Fri, 14 Apr 2023, 17:58 TSHINGOMBEKB TSHITADI, tshingombekb@gmail.com wrote: 19.. 47.1.Requireded: operationel subject field saqa . seta implementation Saqa award certificate. Assessment conduct seta Saqa award diploma certificate n engineering.and St peace college training skill.mseta CHIETA.. development panel and control wiring Level engineering electrical.infracture development. Meeting saqa requireded I'd..no meeting statement skill development.id certificate award St peace college .db box outlet socket switch dol motor.transformer. Control instrument mechatronics, Career development city power graduat.implentation .career Continue trade skill supplementary trade meeting month trade . foreman ID: 258968 saqa commissioning domestic or commercial . ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering. ID : 263006 saqa ,demonstrating wiring of premise defining ID : 258937 ,install ,maintain low voltage,DB protection ID116466: inspection and circuit , ID: inspection and maintenance control and control panel and circuit , ID111388 :saqa electrical engineering and construction saqa I'd 67461: N3 code instruction category meeting ,A,B,C,.. Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and energy sector, maintenant,DB, protection,electrical safety cleaning, -- scope of work specifications.sans 10142, - circuit breaker ,isolator, contractor and relay ,install Db , inspection Db , ID10607, 10605,10634, - replace fault -ID 116434: control electric network from a control electrical . Centre sgb ,power plant .field manufacture engineering and manufacture. -Switch way panel wiring education technology. I'd ,electromechanic .electrotechnique .. teacher I'd .saqa . -47.2.requirement n diplomat engineering. ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities compagny city power

implementation visited day field manufacture technologie trade. Training - interpretation drawing electric code graphic. Purpose. Assessment : explanatory electrical plan create electrical plant , Content ,wath is purpose benefit of electrical , metering city power and St peace college workshop - how to draf an electrical. - tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited - power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch, - draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet, - plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan, -electrical plan legend Celling mounted light ,duplex receptacle,telephone outlet switch. - basic electrical plans , - patients room electrical plan create your electric planfirm a patient , Basement wiring plan --when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment , Intern of electrical distribution, -schedukes are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire , Project Schedule usually expressed in tabuled,organised self explanation. -typical ref, legend and - build drawing s: Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge i-nitial design drawings . -Construction process completed . . -Electrical drawing and schematic. -designing installing troubleshooting electrical system requirements use variouse ,line represented. - design engineering and technician use schematics to build and troubleshooting -one line diagram: medium voltage switcgear one line diagrame , and power systems single diagram. Is often drawing flow of electric. Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item -Drawing should be kept . - main control room of a -switching operation buy identifying feeders and the load they serve, - system voltage frequency phase and normal operating position line diagram, - for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection. - diagrame show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system, -schematic diagram Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit, -circuit breaker control schematic: wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram . -main purpose of a wiring diagram electrical circuit arrange, schematic diagram, - wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair , -Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor, - arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical, Symbol. Represent schema -logic Diagram: current gate and logic gate clock - breaker faillure relay logic diagram . Modern protective relays utilisation diagram to represent complex circuit process .electrical. - schedules. A buid Electronics use soldering.and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding.. Fit recess .fit wiring .process.. Control - instrument method selector design metering process Appointment of service provider supply St peace college and city power delivery component lab workshop part time table subject.. -introduction golbak stage St peace college . -Scopes of project: projection requireded supplies to purchase and deliver total ,. -Special condition component Subject module metering 4.purpise documents. Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internership fund student.gov -Quotation value tax (vat) project : _time frame project is to commence success bidder Firm price subject , name of the compagny quotation close Appliance and compagny subject. - item description of good part number quantity Evaluation criterion (80/20). -request for quotation number -limitation to quote supply and delivery Item/ description of good //quarit///price/// bid price RSA 001 /engineering electrical practice workshop projectye engineering open view lab test lab and workshop practical saqa .dhet training exam papper .seta . asssessment police //// amount estimation fee Total include .8modul x 24subject x3month 200 projection years aman's test experimental technology.training integrity one project .. -deliveri period Specifications requireded for project: Item, part numbe r, performance b, size,model Inlet . Outlet .2.12 - : T=1/lamb.ln 2... Unity design - : Metallic layer fabric oxyde metallic alluminuim material R=¶.l/w... PCO=vcoxl....Vco (iMax/2)...n (po/p1)x1000;;; vccmax -vcc/vcc Requireded : engineering science physic chemical.. electrical..power machine E=T1-T2/T1=100%. , VP/P=VRT/m=v..sq Efficiency=w/Q=1-T2/T1×100% P1.V2/T2=P2.V2/T2 W=W=P1.V1.lnV2/v2.. SF=4,187lntf/273.. T2/T1=(P/P1) exp r-1/r W=P1.V1-P2.V2/r-1. PV=M1.R.T Q1=m1.C.ΔT Q=m.l.v U=m.C.V(T2-T1).. (V2/V1) exp r-1=T1/T2, ¥=CP/CV.., R=cp-cv W=m.R.t.ln (P1/P2) P1.V1. exp r=P2.V2.v2 r W= m.R.ln V1/v2.(T2-T2) f exp 1= fv/V-v f exp 3=f(v+v)/v V=.f f= C/2.l V=√¶p/p=√¶.R.T/m V=√F/u V2/¥1.=V2/¥2. f=f(v+Vo/v+vz) f=1/2l.√p/m E=F/Q1=Q/4.π.e dr.. Electricity. W=Q.V.....E=m.g/q.....Ek=w=vq Q=C.V.....E=h.f.....F=q.E.....E=1/2.C.v exp.....V= m.gr/Q.....t=R.c.....S=w/F.....r=Q,/4.π>£or V=k.Q/r...C = €r. €o.A/d.....F=k.q1.q2/r sq Ek=Q.v.....e= v/d.....1/c=1/C1+1/c2.....v=|.f W=1/2.Q.v.....m=EQ=(V/r).Q....C=k.€.oA/d.....q=F/m=EQ/m=vq/SM..... W=vq=1/2.m.v sq....@= Q/4.π.r.....w=2/2.c.v.sq T=1/lamb.ln 2... : Construction architecture design file development.system input unity, control memorandum ram Ron outputs CTR display print, - data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram .. Engineering potential coefficient result and reducing voltage integration buy factor 3/5.initiL x = chart capacity .evoltage voltage solving different equation, 5 DX/St+3x/5.equarion incase voltage DX/DT=3x/5.reauired output integration, full scale voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =31×0,2=0,2 A event bit D/A delivery an output current, 100mA,let B=10/20=0,5 mA ,,1110=29×0,5=14,5 Analogue computer camparebdigital computer .. Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binairy number changing of by simple add kissing course shift language data general ..wireless communication . Metering and supplies electronics . Re : 40.8..Requireded: award degree diploma saqa qualifications I'd : asssessment no meeting requireded.transcript completed supplementary subject : foreigners transcript.saqa qualifications I'd :71638. Higher qualifications. Primary registration status,saqa decision number, saqa 091/21. Registration saqa assessor conduct certificate . Saqa I'd instituts foreign.no meeting instituts accreditation saqa decission. Admni /30-39 NC's. Total credit . -assessment policy IE099-IE00.regular internal, Saqa decission 10105/14 advance diploma intermediary phase teacher.conduct... .n1-n3 national certificate engineering studies. -N1: Saqa ID6710, N2 saqa ID 637375,N2 saqa ID 67491..Entrance... I'd saqa award diploma N ... Ncv assessment plan isat . 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,.. topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...training exam rwiten permit and time table practice exam days. Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode.. Isat integrity practice..time frame .allocation require .. 41.1..required city power vacancies Estimated ICT service Research inovation: -table of content . Graduate internship Training center employee.visitor student apprentiship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training. 1.city power vacance 2023.for officer special and variations use career opportunities. Training oppoy . metering guyser . light city .training engineering career. 1.1 How to apply for city power vacances 2023.. student career granted. -meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training partnership test . outcomes career student generation power station transmission trading . - city power workplace ready to light up career artisan engineering. -

name of profile - city power . -manager vacance. -city power officer vacancy. -city power specialist.. : 40.10..requirement : implementation -- SAQA module award diplomat -Award diploma n.engineering electrical -Award instituts foreign decission saqa -registration .award saqa n1,2,3,4,5,6. -Award meet documents. -Assement assessor saqa conduct moderator I'd: 202001305040/20191130002 Dhet exam nated: 201000203812/2004007064381/2011007434332.. 40.10.1 requireded of work experience logbook instructions programme code 5090840..national n diplomat.engineering studies electrical I'd :90674.engineering studies NQF level6, 360, credit saqa learner I'd 67043 national electrical engineering nqf .level6..learner name :tshingombe Tshitadi ,surname : Tshitadi Fiston. Number employeer : Details compagny St peace college city power: Name signature... Trade test technical environment Date : ..... sign... 1.code.wA.0201 Purpose asssessment entry Scope. Assignment question answer assessment evaluation qualifications St peace and city power metering Interpret technical drawing: .evidence checking the drawing confirm relate equipment in accordance stand operationel procedure reading information written . Design db box outlet socket . 2.undertake numerical undertaking numerical operationel geometry and calculation formulae Scope . Terminate and connect electrical wiring Date . Signat Material conformance checking and existence new installation site correct location. Specifical W0302 checking existing and new installation .making terminal,connection. . Specifically . Manufacture.adjust and fixing wiring support tagging and labelling cable,wiring ,conductor and connection .undertaking , specifications testing of wiring and conformation to specific . Connection for conformence to specifications.use language . - interpreting circuit,drawing .preparing work plans in accordance with legislation and regularite requireded stand operator.using measures for installation testing electric wiring circuit .testing wiring enclosure and support system .indentification compliance relevant ,energising testing installation identify rectifying.completing report and documentation using short circuit comment relevant terminology,considerant plan Ning rescues or provision of assistance,isolating electrical hasard safety changes controller operationel parameter , Conditions air and refrigeration electrical special dues trade that lead diploma need experience , -Construction high voltage installation . -substation , -pane wiring Armature winding , -A. Running test function and recording fault and or equipment status indicated by buil in test function . equipment sub assembly, components connection and terminal , -removing replacing components and termination for confoi,isolating electronic , returning calibration electronic equipment sub assembly.recording ,obtening relevant circuit ,schematic manual ,isolating tagging ,and verified.refitting sub assembly , -specifie sub assembly,schema electronic recommissuoni g electronics equipment ensure,entering routine electronic ensure conformance, -drawing reading drawing job . documents listed.maintenance .single phase. -Repaired control loop system look evidence that confirm skill.obtain and interpreting engineering specifical technical information software hard .data diagrame historical to system components and operationel. Consultant system other relevant plant personal with respect to control loop characteristics. Confirming function malfunction of the system. Component . checking operationel character controleur device,signal conversion instrument and final control element . . identify fault the control loop for correct operationel .monitoring the response of the control system , using appropriate fault find diagnosis technicien and procedure throut technical. Monitoring Comparing collected data.operational. - engineering . dismantling..service item setting appropriate test and calibration equipment w..control mode checking control ..install commissioner the control interpre data calculating control loop characteristics.install calibra.access and final control accessing data sheet. Circuit.diagrame engineering.install sensor..identify cabling conductor .locating inspecting .. Criteria Trade manufacture seta merseta sasseta accreditation .saqa assessment training -Job instruction engineering electrical St peace colle and city power electrical wiring .statutory and regulatory.connection support.. Method material.test wiring for approval work Learning technical outcome.self checking ., -activity log sheet.state following equipment hand tools . Desoldering tool soldering fiting welding pencils Activity :voltage power supply.long Bose portable electric hand drill.drille EXC. Flat screwdriver used driving or fastening positive slottel scree.flat screwdriver is used in driving or fasteriing.join two support lead melted around,side cutter pliers used for cutting or terminal wired testing .soldering .join cable .chisel.resistance .ms program.. -hNd tools label program.criteria .score .identify.tool... Terminating and connecting electrical wiring and electronic circuit.test termination . asservissemnt criteria. Practice... Dhet..faculty electrique engineering. Completing diplomat logbook.application application - Subject : electrique trade theory, industrial electronics, engineering science, mathematics, electrotechnique drawing engineering.. -Logbook cover page.: St peace college Exam internal assessment and external -application letter :diploma St peace college assessment circular irregularite final award saqa qualifications award diploma , certificate.vist city power training career inovation trainings -Letter from your employer.career St peace college trade practices assessment engineering.policy practice school engineering. -date period work specifically subject n6; qualifications irregularite..regularite assessment.. Portofolio evidence Poe: asssessment policy evidence low -Candidate work 18month St peace college time table trading practice asservissemnt criteria saqa. Completed duty . -Duty city power St peace career patrol . Certificate I'd -Summary: academic info n4.n6.. Irregularite assessment police Poe's relate low . Copy statement 12; subject n4.n6 .. Subject condonation award.subject irregularite trade theory .. transcript academic time table.. maximum one, 2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in government departments ..qualify development social.energy . education department asssessor, instituts Unity description Yes /no Regulation %= (220-210)x100/210.. Equivenlent transfo..E2=I2.Z2+V2.. E2-V2=I2.Z2... *estimal 20kva,2500,500v,single phase tfo.winding r1=8ohm .x1=17 ohm. Wining R2=0,3 ohm ,X2 =0,8.. primary voltage 2500 ,. O,6 solutions E1=2500v,R2=500v. Turn ration N=2500/500... Ration =E2/E1=600/2500=0,2.. apparent power s=20kva,. I= S/E =20kva/500=20×1000/500=40A.. - -refering to secondary side. Ro2=R2+k.square r1=0,3+(0,2) square×8=0,62 ohm Xo2=X2+k Square=0,7+(0,2) square x17=1,380 a) 0,8 lagging Volt.reg v=12 Ro2cos #+I2×0,2 sin @/E2.. Volt reg = 40×0,62×0,8+40×1,38×0,6/60 VR=52,96/500=0,10592,. % VR =10,59.. Secondary terminal voltage. V2=R(1-v2) V2=500(1-0,10592) V2=447,04.. 0,8 of leading. Voltage vR= I2 to square .cos@-I2 X2 sin @/ E2.. VR=40×0,62×0,8-40x1,38×0,6/500. VR=O,O2656..%VR=-2,656%,,, Point to key Secondary terminal voltage. V2=E2(I-vr) V2=500(1-0,02656)=513,28v. VR..VR=12Ro2 cos @+,I2Xo.sin@/E2. VR=40×0,62×1×40x1,38×o/500. VR=o,o496...VR=4,96% V2=E2(I-vr) V2=500(1-0,0496),,v2=475.2 volt.. Estimation : 40.6 management multiple backroung task and interrupt driven system. Clusters system information connection . Monitor display , basic knowledge suggestions reading embaded engineering electrical. -basic circuit theory ,fund arrest ,how to configure pin microchip microprocessor Hard basy trainer bird work station PC running windows Mavis Linus 13v DC motor power main gate gate mplabx cross compiled spreadsheet excell log entry visited internal external St peace college engineering access and city power access meeting agendas menute . - project takeaway : how to read analogies voltage compare to implement a capture period measure fundamental digital,open loop and closed loop process control , _ fundamental concept unit introduce process control electromechanic I/0. Process control: automate process control engineering deal architecture.. Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal yes amp ,signal card , process yes ,tacho meter yrs , open control yes record count positive yes , ,, 40.7 maintence inspection: components program, -inspectiins check operationel back , -inspectiins lighting inspection:bulb regulatority exam control ,transformer hardware and and gasket exterior light, Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing equipment timers and photocell, should be inspected and exhaust fan, HVAC inspection bfiltrrbdict filer 41.purpose. Study case ..St peace college energy rurale and city power energy. 4.1. Electrical grid system design to provide electricite way from it generation to the customer system ground from design kilometre*

and connection countless complex interconnect. Workplace workshop practical projection ..lab system fundamental Test problem requireded.. Eskom and city power , -generation electricity ,power plan warn to convert mechanical energy of turbine into energy use generator except solar power , photo voltaic cell ,power plan ,energy fuel. St peace college workplace. Test lab experimental practical. Result recording operationel: kWh ..kV..day - transmission :large high power line are crucial component .power plant pass through stepped up voltage voltage increase in electricite by transformer .by distance with typical maximum distance. Result recording operationel test. kWh .kV.ka day Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy problem acceptable level, Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial power plan and medium size power plan 1500 me..interlock 110kv and up . joint connection distribution grid transformer 150mw power station metering city power plant , 2mw industrial custome power station , solar farm ,eolien farm ,rural 400kw,50kv transfo metring buildings house dispatch . Estimation const inspection area building infrastructure. Test lab open views stwich gears inspection fault .circuit breaker fusible ,Relais Power system of electrical increase descrease note lab Supply test month average costly Methods use for switch control circuit during normal operation, permit to switch off on the generator ,transmission distribution equipment. If faillure occured short circuit heavy current pass.feature switch . Switch operate in order isolate health system b, discrimination,,switch air break switch medium, - oil switch they operate in oil arc that occurred fuse joint ,anormal temperature. Daily week time open ,time close date - circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manuelly can opere under high voltage type current . Test day daily month , -relay: is basically a device or switch detect fault system then it provides the information to circuits breaker , - can operate to prevent the health . Primary relay is connected Relay trip circuit ,relay electromagnetic induction test , Type of switchigears,2 outdoor type,2 indoor type,66kv .. Test transfer function is networks the magnitude,1/√1+T-square.Csquare. phase shift network.. Vi/Vo=1/RC/ JW+1/r.c ..test close open system .. Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor . - NS =120f/p, f the supply ,p is the number of poles in machine, Working principle key principles key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine requireded,machine two applies one DC , synchronous machine operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit , synchronous motor relative, , Test daily week time load Relever trade. Integral derivation day Unity descrition Yes/not Equation of sychronouse motor . V=Eb+Ia(Ra+Jxs). Voltage v.eb back EMF .is armature Ra armature resistance .on system day working duty shift -resultant voltage: difference between the voltage applied v.and back EMF, E=V-Eb,. Er=Is.(Ra+jx.s) Back EMF generated: Eb=ka.¶a.Ns ¶a= constant of the armature,¶acmagnetic flux perpoles, NS = synchronous speed of the rotor .En=v normal excitation lagging power factor EB<v under excited.over excitation. Input power: input of synchronous motor .Pin=v.Ia.cos¶ per .phase .Pin = √3.v.l.Il cos 3phase .. Mechanical bpower in rotor Pm=Tg.NS Pm=En.Ia.cos(a-¶). . Pin =√3.vl.il.cos¶-3.I square.ra.. Pm=pin -Ia.Ra.. A load angle between en and v, angle between band Is ,the is gross torque products .Na is per synchronous. - stepper motor Ster angle ..£=(ns-nr/ nsxnr)x360. Step angle the angles of rotation of shift .NS = number of stator / number..poles .Mrs of poles Motor asynchronous..nr-ns/NR slop squirrel..star current as..z.c .p. DC motor machine .. Resolution 360degre/ beta accurate of stepper .n motor speed.n. Requireded learner induction machine system engineering electrical St peace generation GB ..machine system hr resource compatible run .-transformer three phase Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power . Y...VP=Vl÷√3. Vol=√3xvp... D. VP=vl...vl=p.. Y.Δ. Turn ration TR=NP/Ms=VP/√3.v.s.....1/2....step=1/,√3 Δ.y....TR=Np/NS=√3.vp/v.s .Delta delta line vol primairy secondary vl~n.vl...line current primary IL/n. Delta star vl √3.n.vl. ..Il = IL/√3.n Start delta ..vl_n.vl/√3...IL=√3.il/n.. Start start vl =n.vl I=IL=IL/n... Estimation data 50 Va supply,line voltage 100v , primary turn 500, secondary turn 100, n=NS/nP=100/500=0,2 ..vline sec =√3xnxvline =√3x0,2x100=34,64volt -V phase sec = v.line /√3=34,64=√20 v. ILine (p) = Va/√3.v line =50/√3x100=0,289 Am.. I sec = ILine = ILine (per)/√3*0,2=0,834 amp.. construction... Transformer voltage regulations.. Voltay regulation or percentage value by which transformer output terminal voltage varies, up or down from it load value... Condity when IL = 0 open circuit to fully load IL= iMac maximum current for a constant primary. , Regulation=change in output voltage/ no -load out voltage Regulation = v(no load)- v (full-load)/v.no -loAd.. - percentage % reg (down)=v(no-load)-V(full load)x100%/ v no load . % reg (up)= v(no - load)- v (full load x100%/v.full load.. Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transfo regulation ..0,005 or 5% ..(100-95)/100*100% V1 <E1...E2=I2.Ro.xos2+I2Xo2.sin&2+v2 V2>E2..E2-V2=I2.Ro2.cos2+I2.xo,. Capacity load x 100% 40.2 required purpose.control .lab -introduction lab is to investigate application of embedded control controller to real time algorithm that employee analog input and anslog outputs engineering electrical St peace college time table and city power training days care computer algorithms to implement a closed -loop processor from machinery or motor speed hortorinh .conduct system manager security physical.hin feedback can used to lineare inhertly non lineare process and results in zero steady state control errors, -objectivity assignment engineering electrical time table and training city power St peace college. 1.general power output to implement system management variable machinery motor supply voltage. 2.implement a tachometer operation using pic timer engineering electrical and trade. 3.develip program code academic to implement a picture 40.1. requireded: case student training practical school and practical schools engineering faculty, saqa registration .setat registration St peace registration Practical school learner secreatairy help school efficient ly by performing clerical task support principal,work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors,students making appointments,maintening student record handing incoming and keep the school website event update calender ..St peace training and city power training to city calendar. 40.2-question how to construct impressive teacher Portofolio learner training . Portofilio evidence.career job .degree scotllande . 40.4.education leadership and management .St peace college and city power management trainings work subject. -School engineering electrical training practical governance .online master of educational management on line honour leadership inovation.bucheler saqa qualifications award degree diplomat learner practical, -40.5 guide formative training homework qualifications saqa diplome d etat homework back laureat Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admnission . logiciel Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family. -Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes -management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports In city power external training job - management schools fee bursary Engineering.step. . -principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject. Test PC school air time -functionnality test education program .note globally service global services client . functionality,rapport .quality. Administration at peace collt give .the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress . The level students adapte situation place social development projects government state teacher inovation democratic acess in the age of leave*

level students adapte situation place social development projects government state teacher. Innovation democratic access in the age of leave work children. child care . level diplomat. Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprentiship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile .filing animation social model .-.the administration workable of Poste school . description post admnistrator supervisor.task school admnistrator college etablissement good function to teacher vocational and the trainings . Task functions.budget manage logistics give line to marks reference. -chargr admnise to coordinner all the process admnistrator management political and evenement .to resolving conflicts problem school in training external.to response counseling students resolve conflicts -legislation school subject after assessment Portofilio evidence learner excepter deall misconduct pffense discovery learner in St peace College. To city power work. have definit school domain show management recruitment registration new students or contract news compagny external internal composition commission and differente ., - counsel teacher difficult entry dismissal.procedure.prise , Commited management schools circular framework.importance, - to have definit sanction and reward primary deceive procedure input in case of abandoned post graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill development implementation learner.in St peace college.hr ruling . -practical school report rwiten efficient parental learner in induction learning student at peace college to going to city power to complete a project class assignments.assessment year report primary tracker run circular summative.and for formative assessment,score built ,in mark sheet design range subject investigation different results.expectation accrose range assessment results.defineed and speedly asssessor workbook strategy report run regular census data cloud policy, - week course audiovisual and social class room creation ICT technology digital tools learner critical digital literacy , -international studies in educational inequality theory .skill student basic employee in access to different level level of education academic understood generalite theory outcomes system worked primarily school junior .ethic deontological generality legislation school ruling resourcereality legislation school and principal admnistrator act importance in saqa qualifications citysen to frequently industrial. -Duty of chief college and department management schools, . political public education state evaluation,control priority norm posterior.level organisation type model office bureaucracy. _flexibility of circulum, -caracteristic of students and training St peace college to training caracteristic job compagny city power,to give a good operationel results projection goal target day visit, -management leadership measure political principal objective professionalism in job training caracteristic direction ordering collegial.counseiling director . Management intermediate division organique function authority administration directives, professional and pedagogy training, execution government, judiciary low . legislation low schools.functionnel authority teach assure orientation coordination pedagogy -.situation curriculum flexible examen national Central administrative contract d 'autonomie protein project study chief of .changement of authority power of teachers society civil offer influence democratic in circulum asssessment.and training examinator _ to me 50.2.Requireded: engineering St peace College, ensuring maintenance care components discovery,idee improvement tips self no coping constructive bridge design ,defey force militaire operation , Policing investy resolve of crime frame work regulatory collating information indentify crime , engineering, -Defense militaire operationel force -mil STD 13231, content ,paragraph application general ,standard ,other goverment , publication ,order of precedence , definition , commercial entity gage , commercial off the shelf cot product, containers,decalmane,design activity documents functional marking engineering, -joint electronics type designation system industrial St peace college .industrial electronics safety factor low defender land. -Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of precedence, part number identify number safety electrical trade theory safety manufacture sabs sans health outcom . Procurement instrument identification number,set selected item ,drawing ,sequence marking unit ,safety and police framework low system manufacturers St peace college , General requireded general government name and type number ,join electro design system ,St peace college CCTV ,alarm safety trade control system offensive training marks manufacture award , Army nomenclature system identification number :I'd permit St peace ,inspection contractor Gove gagr identification b, Limited used multiple use special item identification college , use of unity pack bag, reference design goverment bdesignAtor, reprocurement,electronics tubes electrical part tubes, name plate data for article,special requirements for marking of container, identification of set article of or , indentification,marking articlevbatterie warning high notice radio active,ion ionising radiation,technical literature caution:safety electrique OSHA sabs IEC commission St peace college system manager, schematic wiring and cable diagram , chassis identification modification work order number, sensitive electronics device,location of marking ,general marking process: ,marking on surface size and form of character label,material process radius of careers ,mounting mountain spectral Gass opacity permanency Nd durability,facsimile,issue marking for air transportable reprocurement perman y legilo,subject . 50.3 system engineering management, system engineering process ,sabs sans St peace time table outcome career engineering safety electrical engineering generation transmission.assessment require , requireded process and analyse allocation , function analyse allocation,design synthesis, verification, system engineering process -system analyskse and control ,workbreak drain Struct, technical review trouble model and simulation .metrics .risk management risk management Planning organising.product improvement strategy organisation and integrating system development, contractual , -system engineering fundamental introduction,: general , application,referred facility grounds system grounding Nd power distribution system ..St peace college safety career generation.policy Bonding shielding and grounding relation grounding safety..relation investigation low cabling geotecnical city power Eskom and customer occurrences repot. - lightining discharge fault protection noise reduction summary of requirements,resistance to earth communication lightning requireded typical resistivity summary,soil effect effect, measurements of soil resistivity, measure technical ,one electrode method four terminal ,earth electrode , system,general ground rods buried gride plate s metal frames,water incidental metal, resistance properties simple isolated electrode ,, Transient impedance , electrode ,fall of potential metal extension ,test paint - lighting phenomen influence of structure height ,strike like hood attractive less than 1000,flash parameter mechanical thermal conductor impedance inductor capacity couple earth , -fault protection :power systems fault ground circuit interrupt, Conductor direct current resistance, alternating current impedance skin effect AC reactance proximity effect, resistance property vs impedance property , effect geometry,standee cables , rectangular Conductor tubular Conductor, structural , - signal substem : networks configuration..signed point ground lower multi ground higher frequency plane Defense mil STD 1285D, Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter,open frame construction color passed molding,Google switch ,printer wiring stddata regardless,data is applied directly surface information described , intend ,use ,issued of DoD marking for shipment,serial transportable item reprocurement,permancy legibility,name caution plate caution , Mil 200 system reference goverment ,non governmental whose identified gate drawing format size letter and .drawing numbered system duplicate of assignment number, Output.physycal architecture product element and software code decision database.input function architecture,enabler ipts decission database automated tools models, -control constraints gfd cot resablr system ,concept substem choice organisation procesudure, Reusable SW system concept subsystem choice , Activities: allocated function and constraints to system element, synthesis system element alternative, asssessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept P.E=q.v q.is charge moved voltage rate doffence other change. P=I.V....E=P.T.,Talk= resistivity .l/a , H= Δc m.(T1-T2).. -Pl.=v.i.cos.. IL=p/v.l.cos unresolved transmit 1009.10 m w..at

10.kv.resistance of 100km... Wath current need to transmit : Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connecter ,signal controller send impulse stepping ,interconnector ,div ision .... Alternator . Loading effect heater current 50.require regime sinusoidal Transfor mer Group 1 hour induce clockwise radio .. Group 1, hour indice 0,-4-6 Group 2,hour indices 0-10-2 Group 3,1-3- Group 4-2-11 Connection couple YY. M= n2/n2. Y.d. M=N2./N1.√3 Dy..m=n2.√3/2.N1.. U1.=4,44.n1.sfb.. N1=u1/4,44×sfb.. Loss ion .copper. : Uco.Ico.cosπ ZS=m.U1/I2... Model: fresnel diagram .. existing Constance kapp E=V+Ux+UR I1(t)=IMAX.cos(wt) I2(t)=IMAX .cos(wt-2π/3) I3.(t)=IMAX.xos (wt-4π/3) H(M,t)=3/2.Hmax cos (p@+wt) Point award 102. Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite -Determining the wage : Job classes and average A 60,B65 ,C 70 ,D,80;E80,C85, I stitu good task . Task exer measure responsible judgement application of technical legal account statistics engineering. Abscent .labour overall... -Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b. Distributor performance Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering - Item report financial mode product .RK 1mB memory's Specifications Display ooerater Printer print meter Memory back Power consumption operating dimension,AC 120v, 99;day data Label printy Power requirements Power consumption Operating tem.plotyer size.product ... -Personal call plan Telephone call plan matrix customer number metering code Level factor call plan ..error association observations .level call plan analyse market . Winner trading plan.nwt profit bnumber win pay out number .proffi loss .. Bulletin trade test job returned posted job postponed.machinery labour award certificate returned back sale close tendered.close maintenant manufacture invention supplies.policey returned award low,cost Point award 102. Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite -Determining the wage : Job classes and average A 60,B65 ,C 70 ,D,80;E80,C85, I stitu good task . Task exer measure responsible judgement application of technical legal account statistics engineering. Abscent .labour overall... -Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b. Distributor performance Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering - Item report financial mode product .RK 1mB memory's Specifications Display ooerater Printer print meter Memory back Power consumption operating dimension,AC 120v, 99;day data Label printy Power requirements Power consumption Operating tem.plotyer size.product ... -Personal call plan Telephone call plan matrix customer number metering code Level factor call plan ..error association observations .level call plan analyse market . Winner trading plan.nwt profit bnumber win pay out number .proffi loss .. Bulletin trade test job returned posted job postponed.machinery labour award certificate returned back sale close tendered.close maintenant manufacture invention supplies.policey returned award low,cost St peace college hand over report returned investigation phenomenon development skill design planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in generating power.station career .science student knowledge obtain engineering electrical in installation day month log activities career inovation.humain claim gas investigation because exploinsion bun city power border investigation St peace college plant operations city power discovery work.and definition professional.. That conduct research student St peace field career generation metering in city power.to ensure city power operationel plant part and maintence components bcity power understand science b to develop circuit calcul must go..to planing city power road going ..nature idee time table.. revolution in city power accessories to devices critical eayes observe custome in city power creation idee.implenting time in city power cited plant and author industrial society and force defense and police security. -defense military engineering.police development systems information in city power inovation skills mean creative new idea access student in training be researchers.. - : Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen, mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same, -typical application general purpose Tash lighting large area commercial. -efficiency luminescent 13-30,40,to,130, -bulv lift hour,dining controk, excellent, starting time promo,colours - energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement , Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD - determine procedure when planning installation. BxDx heam index)100= totak kWh requireded . B= length to head in meter ,Db= with to heart in meter heath index = intensity b 50.1 radiotechnic : power amplificator TV sons base oscillator line pentod. Input out put. Control system Caracteristic: eat indirect cathode insulated wire Vi6,3. -source wire - use conditions nominake rms Voltage anode. Va 179..250 v Voltage grille vg 170- 259 v Current .62 to 2,4 ma, Coefficient amplificator 10 ,15 ohm Resistor internal pent 0,2 4,6 mA Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity anode cathode CAG less 0,8 of , Value limited peek voltage vap max 7 kV, voltage of anode Va max 300 v,voltage grille 300v, cathode current max 30w @89 MV ,8,5 Installation light tube amplifier input Telemer video output pentod,power pentod,flip -insulatiin in receptor conversion in case we Cree out mixage voice voltage insulator mean level of power Heater nose IR(t)=VRFcos(wo)=I(t)+Δv1. QR(t)=VRFsin(wot)=Q(t)+Δv2.. 50.. Requireded.rypical telecommunication street distribution for new urban resident using side. Legend electricity pedal,rod wat,lot 79,,asdl signalmstreet cable ,concept,asdk modem customer, -Typical underground copper twis par network telephone exchange.. Cabling of homes telecommunication completed fuid to home line mode possible fault to comming the telephone voice port fault to switch relay connection - basic home network system typically cabling connection telephonic and data services. Legend . modulation socket,modulator coaxial socket,optical.. Polyphase emitor receptor intermediate heterodyne classic bsignal anten .module phase Phase shift - canal of transmission GSM interval area antene to cell phone.. BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance caracteristique area E,/H=377, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned 50.. 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Voltage equipment suitable operationel maximum steady RMS over voltage equipment master rated accordance application, -single phase 230/240,volt 60,89,50,Hz standard frequency for netral sans .installation definition up low voltage 50 AC,15 kV ,3 phase ,230 400 volt ,230 volt wire system higher typically in large residential, when all , conductor installation carry load in voltage drop between the point of supply and not exceed 5% of standard declaration voltage in case 230/400 system the voltage not 11.5 (5%230), for

drop between the point of supply and not exceed 5% of standard declaration voltage in case 230/400 system the voltage,not 11,5 (5%230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue ,one neutral, .neutral Blac or blue, wire voltage , lighting . circuit Conductor, - Conductor standee wire allowed the free flow of electricite most are conductor copper and alluminuim.heavy expensive, 1,A,100m , - compulsory standard: specifications for circuit , breaker govment notice Gasset 20461 of 17 September 1999.Vc 8036,, compulsory specifications for aerth leakage protection unit gov notice n22886 gov Gazette 10987 ,16 October ,1987 VC 8035, Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electrique cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gasette , compulsory specifications b, flexible cords ,electrical appliances notice ,sans 10142 sabs 0142 is concerned with ensureing the basic safety safety bof electrique installation , To ensure the protection of and properly and properly functioning installation the designer of an electrical installation , - the characteristics of the power supply,the nature of demand ,the operating environment of each part the installation, it especially important to award of acceptance building -process or handling of flammable or exploinsion if want safety features for installation prescribed,such features contract documents, - provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electrique installation, they do apply to the construction and safety of equipment appliance and accessories.. Foundamental safety live part test finger,during normal operation .permit normal operating conditions temperature safe 70 celcyis,90 bin case metallic part earth New electrical installation should not connected to supply include a protective conducteur, -use electrical equipment insulated, .. Installation replacement installation should accessible ajoiining premise building there is easy access to it location ,it is not like physical damage,dust moisture accumulation on liver , - Distribution board ,in case requireded sans 10142, function safety equipment number circuit road ,mounted dange notice appliance or in position stationery cooking enclo extended, - busbar bare copper aluminium conductor fixe test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2,A/mm sq for current 1600A, 1,6/mA/mmsq, I1,I2,I3 code . - disconnecting devices: Transformation disconnect switch supply disconecting devise control . - Circuit breaker: circuit breaker open switchh automatically over current protection RCD residual courent ,clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A, - Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple,surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose . - circuit.80 m sq floor area separate circuit protection according lighting circuit probably ,restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW ,to 60 amp or more it is most important 10 , 1,5 mm for lighting depending how many fiting connecting 4 or 6 ,10 MMM sq for cooker water - lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar ,6A.,250V ..A.C excepbin the case BS ,1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw,16A, single sans 164-4 ,16A,259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans ,Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m.in case aelvy 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket ,16A,6V,.. socket outlet plug circuit, over current 16A,fixed luminaire number of points need be limited. - Mixed load circuit: Disconnected close proximity 16A, /. 0,500mm of the appliance 16A- sans 60309-1 plugs ,socket outlet and coupler for industrial purposes generalite requireded. Sabs IEC 60309-1 dimension sans 337, sans heater ,16A power .. Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage,risk , fixing position. - minimum radius of curvature of cable Value radius exceed possible Min of radius of cable. Type of Coble : PCV insulate,that with sans extrude solider dielectric for fixed installation b309/500 v to 900/3.300v .,papper insulator, Type of shearing : unsheathed sheathed unarmoure ,. Diameter of cable d<10, 10<d<25,,25<d<40.. Minimum radius of curvate 3d,4,d,8, - common cable types: open wiring 250 protect above Arial cable ,surfix ,flex or reciprocal ,cab tyre,house wire -Wire size and current ratings: Core size wire size mm.sq 1to10 Current 13 to 54. Wattageb3,25to 12; -typical Appliance : lighting , powe circuit. - maximum cable circuit length at gizwn circuit breaker Nominal cross section area mm sq 1 tib16, Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v ,. 11,5;only -core size wire size mm 1,5 to 24,. - current 18 tib1000,:. Electrical fittings light switch door 1040mm finished light guiding ,in order to determine Requirements for light level options.push dimming versus ritory ,level option .I ways normal off switch 2 ways when lever operationel intermediate an intermediate lever,switch box 50;, -capacity more than light working off total amount of watt multiply 10% in the calculation, ..8x59 w dow light= 400w , 400wx1,33=533,. 533+53, 19% 566 it show 600 , socket outlet plug ,. Single or double 16 amp 16 amp -TV FM communication and security: Telephone Nd data socket bell press, TV,FM home movement detector base on passive infrared PIR,protective switch,accoustish,beam interrupting detector,glass break , vibration sensor,CCTV image detection it recommand that where possible products be used evaluation compliance. Home automation system Pre contactitemm Security interface camera ,remote view video alarm , automatically control shutter blind ,double commune, ,Light power outlets plug and monitor voltage light dining switch during the day movement detected long period time, audio climate control door irrigation, schedule sequence, integration weather information consider rainfall, outdoor temperature and soil moisture,control swimming automatically cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi, Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing 12, typical 69% of 20% 39;loss of tfo radio filter protection ,50vA to 500vA are suitable inductive dining (normal 50 ,AV timer Timers:man db appliance.. - Energy efficiency occupancy.,energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed. -Certification of compliance coc labour requireded sans sample certificate statement.. estimation years type electrical number poles current rating short fuse ,239,400 523×In = KA.. Switch disconecting. -laege plant products rate,up date,selling , Demolition compressive sans 50197 -codr analyse concrete Labour rate guidelines: concrete grade 1,2 ,skilled worked semie skill general worked ,total cost day, - wage per days . -Sub - Contractor rates Electrical sub contractor rate Description../unity// price - basic db 3 phase install ,each,R9,500. - basic distribution board install each R6,5900. -3phase lighting protec each R 850,00 - fit ripple relay geyser R859 -fit sub board build R2,759 - supply and lay 3 phase cable form boundaring metre R 129, supply and lay 1 phase cable from boundary metre 35 .00 Cable to external light metreR 69.0 Fit geser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in celling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve,fit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water rigth light point ,door bell point 12 v ,intercom supply ,supply.. Light , illumination level ballast control , discharge lamp Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;. Geyser pressure ,pressure control valve, expansion relief, safety valve , Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400 - : Requireded.: Assessment St Peace college contract learner.skill career development,science electrical Homework class work.assessor conductor engineering. investigation invoice phenomenon development skill effect, involved designer,planer city JHB , discovery of new things , composition something chemical deal,good conduct,build

expiremental learn do practical cleaner , engineering , in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark: Word to perfait 2 G generalite, successful engineering must improve the quality of life , -science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them . -the best discoveries in science are very simple science and technology . - a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science. - investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire, -engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt. -Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct. - I research in advanced field aerospace chemical. -the development lab workspace in workstation shop find tender.. -the test and verify they founding. The use analysis en everything the do such the components development.body -the involved in construction or building of new model -the ensure the operation of a plant place making . -the ensure the maintenance components of the plant part. -the offer technical support no water to go found water, -the are consentence engineering , The must understand mathematics hand science . Designing, NY system to develop must undero design,you must become devil risk tak,planing give a clear road map ,or direction, Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see observe weakness strength , inovative skill mean be creative new,be research. : -40.required: industrial management administration, company city power and industrial electronics electrical, organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorencces light ,bulb.and appliance time table St peace college. Organigrame . algorigramm.principlev line, bloc -rougth casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes,RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport.. - critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing -education training ricelarise industrial relations, - Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good -work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase 40.9. requireded maintenance ..maximizing equipment effectiveness: measuring availability . Availability= operation time/loading time =Loading time - Downtime/loosing time. Available=400 minutes/460 minutes ×100=87. -operating =0,5 minute/0,8 minute ×100=62,5% -net operating rate = actually processing time /operation time =Process amount ×actualncyclebtimr. Net operation . Rate =400item ×0,8 minute ×100/400minute , Performance efficiency= net ,= operating speed , Processed amount x actual cycle time/ operation time = 400(item)×0,5 minute ×100/400 minute =50% 0,625×0,625×0,80×100=50% -A . workings hours per days 60 Min ×8h=480min -B.plane down time scheduled. C. Load time per day =A-B= 460 D: stop losses perminute break down,20 minute. E: operating meter day ,C-D= 400 minute G: out per day =400 items H: rate of quality products 98%, I: ideal cycle time :0,5 Min / item J: actual cycle time =0,8 Min F: actually processing time =jxG=0,8×4000. T: availability=E/c x100=400/460×100=87% M: operationel rate = I/ j×100=0,5/0,800×100=50% -Overall equipment effectiveness=T×L×H×100=0,87×0,50×0,98×100=42,8 -equipement.: 1Loading time ,operating time ,net operating time, 2Sigx bx bag loss: equipment failure,St and adjustment, idlian minor stopp,reduce speed , Calculation of overall equipment -1availability= loadtime -downtimex100/ load time. - 2available=460 min- 60 Min×100/460=876 -3performance theoretically cycle time×process/time operating Performance efficiency=0,5 Min ×400 unit/400 ×.100 =50 Rate of quality = processed /amount defective/ processed . Rate of quality products=400 units -8 unit /400 .. Overall equipment= availability ×performance Efficiency ×role of quality.. 50..Requireded..dti labour exam.and labour appliance time table availability.break time table exam operationel time table management system information.st peace college performance.. competency engineering implementation.. development social infrastructure in gov energy's department.. Actually process irregularite final.regularity compensaylabour .to skill city power visited ... system.. Requireded: engineering St peace College, ensuring maintenance care components discovery,idee improvement tips self no coping constructive bridge design ,defey force militaire operation , Policing investy resolve of crime frame work regulatory collating information indentify crime , engineering, -Defense militaire operationel force -mil STD 13231, content ,paragraph application general ,standard ,other goverment , publication ,order of precedence , definition , commercial entity gage , commercial off the shelf cot product, containers,decalmane,design activity documents functional marking engineering, -joint electronics type designation system industrial St peace college .industrial electronics safety factor low defender land. -Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of precedence, part number identify number safety electrical trade theory safety manufacture sabs sans health outcom . Procurement instrument identification number,set selected item ,drawing ,sequence marking unit ,safety and police framework low system manufacturers St peace college , General requireded general government name and type number ,join electro design system ,St peace college CCTV ,alarm safety trade control system offensive training marks manufacture award , Army nomenclature system identification number :I'd permit St peace ,inspection contractor Gove gagr identification b, Limited used multiple use special item identification college , use of unity pack bag, reference design goverment bdesignAtor, reprocurement,electronics tubes electrical part tubes, name plate data for article,special requirements for marking of container, identification of set article of or , indentification,marking articlevbatterie warning high notice radio active,ion ionising radiation,technical literature caution:safety electrique OSHA sabs IEC commission St peace college system manager, schematic wiring and cable diagram , chassis identification modification work order number, sensitive electronics device,location of marking ,general marking process: ,marking on surface size and form of character label,material process radius of careers ,mounting mountain spectral Gass opacity permanency Nd durability,facsimile,issue marking for air transportable reprocurement perman y legilo,subject . 50.3 system engineering management, system engineering process ,sabs sans St peace time table outcome career engineering safety electrical engineering generation transmission.assessment require , requireded process and analyse allocation , function analyse allocation,design synthesis, verification, system engineering process -system analyskse and control ,workbreak drain Struct, technical review trouble model and simulation .metrics .risk management risk management Planning organising.product improvement strategy organisation and integrating system development, contractual , -system engineering fundamental introduction,: general , application,referred facility grounds system grounding Nd power distribution system ..St peace college safety career generation.policy Bonding shielding and grounding relation grounding safety..relation investigation low cabling geotecnical city power Eskom and customer occurrences repot - lightining discharge fault protection noise reduction summary of requirements resistance to earth

and customer occurrences repot. -lightining discharge fault protection noise reduction summary of requirements,resistance to earth communication lightning requireded typical resistivity summary,soil effect effect, measurements of soil resistivity, measure technical ,one electrode method four terminal ,earth electrode , system,general ground rods buried gride plate s metal frames,water incidental metal, resistance properties simple isolated electrode ,, Transient impedance , electrode ,fall of potential metal extension ,test paint - lighting phenomen influence of structure height ,strike like hood attractive less than 1000,flash parameter mechanical thermal conductor impedance inductor capacity couple earth , -fault protection :power systems fault ground circuit interrupt, Conductor direct current resistance, alternating current impedance skin effect AC reactance proximity effect, resistance property vs impedance property , effect geometry,standee cables , rectangular Conductor tubular Conductor, structural , - signal substem : networks configuration..signed point ground lower multi ground higher frequency plane Defense mil STD 1285D, Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter,open frame construction color passed molding,Google switch ,printer wiring stddata regardless,data is applied directly surface information described , intend ,use ,issued of DoD marking for shipment,serial transportable item reprocurement,permancy legibility,name caution plate caution , Mil 200 system reference goverment ,non governmental whose identified gate drawing format size letter and .drawing numbered system duplicate of assignment number, Output.physycal architecture product element and software code decision database.input function architecture,enabler ipts decission database automated tools models, -control constraints gfd cot resablr system ,concept substem choice organisation procesudure, Reusable SW system concept subsystem choice , Activities: allocated function and constraints to system element, synthesis system element alternative, asssessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept P.E=q.v q.is charge moved voltage rate doffence other change. P=I.V....E=P.T.,Talk= resistivity .l/a , H= Δc m.(T1-T2).. -Pl.=v.i.cos.. IL=p/v.l.cos unresolved transmit 1009.10 m w..at 10.kv.resistance of 100km... Wath current need to transmit Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connecter ,signal controller send impulse stepping ,interconnector ,div ision .... Alternator . Loading effect heater current 50.require regime sinusoidal Transfor mer Group 1 hour induce clockwise radio .. Group 1, hour indice 0,-4-6 Group 2,hour indices 0-10-2 Group 3,1-3- Group 4-2-11 Connection couple YY. M= n2/n2. Y.d. M=N2./ N1.√3 Dy..m=n2.√3/2.N1.. U1.=4,44.n1.sfb.. N1=u1/4,44×sfb.. Loss ion .copper. : Uco.Ico.cosπ ZS=m.U1/I2... Model: fresnel diagram .. existing Constance kapp E=V+Ux+UR I1(t)=IMAX.cos(wt) I2(t)=IMAX .cos(wt-2π/3) I3.(t)=IMAX.xos (wt-4π/3) H(M,t)=3/2.Hmax cos (p@+wt) - Requireded: -Job evaluation form :St peace college career engineering electrical and city power visited training days care -job descrtion : St peace college and city power engineering electrical .saqa qualifications classes job title , skill , -training time dexetry complexity, basic, responsabilite,control,over proper, dealing, concentration working , mandatory, physical, . -Job classification: career engineering electrical saqa .dhet maq ..and training city development . category Close tendered Grade a.,b.c.d.e. Point possible up to 100.,/ Award mark Saqa .close labour returned explanatory..city power . inovation career award .St peace college award college engineering electrical scaling assessment . Close tendered trade sta award invented .award dhet diplomat Point award 102. Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite -Determining the wage : Job classes and average A 60,B65 ,C 70 ,D,80;E80,C85, I stitu good task . Task exer measure responsible judgement application of technical legal account statistics engineering. Abscent .labour overall... -Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b. Distributor performance Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering - Item report financial mode product .RK 1mB memory's Specifications Display ooerater Printer print meter Memory back Power consumption operating dimension,AC 120v, 99;day data Label printy Power requirements Power consumption Operating tem.plotyer size.product ... -Personal call plan Telephone call plan matrix customer number metering code Level factor call plan ..error association observations .level call plan analyse market . Winner trading plan.nwt profit bnumber win pay out number .proffi loss .. Bulletin trade test job returned posted job postponed.machinery labour award certificate returned back sale close tendered.close maintenant manufacture invention supplies.policey returned award low,cost St peace college hand over report returned investigation phenomenon development skill design planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in generating power.station career .science student knowledge obtain engineering electrical in installation day month log activities career inovation.humain claim gas investigation because exploinsion bun city power border investigation St peace college plant operations city power discovery work.and definition professional.. That conduct research student St peace field career generation metering in city power.to ensure city power operationel plant part and maintence components bcity power understand science b to develop circuit calcul must go..to planing city power road going ..nature idee time table.. revolution in city power accessories to devices critical eayes observe custome in city power creation idee.implenting time in city power cited plant and author industrial society and force defense and police security. -defense military engineering.police development systems information in city power inovation skills mean creative new idea access student in training be researchers.. - : Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen, mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same, -typical application general purpose Tash lighting large area commercial. -efficiency luminescent 13-30,40,to,130, -bulv lift hour,dining controk, excellent, starting time promo,colours - energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement , Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD - determine procedure when planning installation. BxDx heam index)100= totak kWh requireded . B= length to head in meter ,Db= with to heart in meter heath index = intensity b 50.1 radiotechnic : power amplificator TV sons base oscillator line pentod. Input out put. Control system Caracteristic: eat indirect cathode insulated wire Vi6,3. -source wire - use conditions nominake rms Voltage anode. Va 179..250 v Voltage grille vg 170- 259 v Current .62 to 2,4 ma, Coefficient amplificator 10 ,15 ohm Resistor internal pent 0,2 4,6 mA Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity anode cathode CAG less 0,8 of , Value limited peek voltage vap max 7 kV, voltage of anode Va max 300 v,voltage grille 300v, cathode current max 30w @89 MV ,8,5 Installation light tube amplifier input Telemer video output pentod,power pentod,flip - insulatiin in receptor conversion in case we Cree out mixage voice voltage insulator mean level of power Heater nose IR(t)=VRFcos(wo)=I(t)+Δv1. QR(t)=VRFsin(wot)=Q(t)+Δv2.. 50.. 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BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance caracteristique area E,/H=377, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned metering overload system : Requireded: electrical, standard characteristics, standard, electrical equipment, circuit,cables and wires,electrical fittings,TV,FM communication and security home automation, system , accessories certificate of

compliance,sub -contractore rate, - electrical installation in homes up to electrician light plug point position advice in valuable regulation, electrical layout ,number point , connection ,stoves,geyser, the electrical distribution system , planning ,number appliance, planing ,designer manufacture be sider ,increase ,the wiring of premise part low voltage installation, refer sans 10142. Voltage equipment suitable operationel maximum steady RMS over voltage equipment master rated accordance application, -single phase 230/240,volt 60,89,50,Hz standard frequency for netral sans .installation definition up low voltage 50 AC,15 kV ,3 phase ,230 400 volt ,230 volt wire system higher typically in large residential, when all , conductor installation carry load in voltage drop between the point of supply and not exceed 5% of standard declaration voltage in case 230/400 system the voltage,not 11,5 (5%230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue ,one neutral, .neutral Blac or blue, wire voltage , lighting . circuit Conductor, - Conductor standee wire allowed the free flow of electricite most are conductor copper and alluminuim.heavy expensive, 1,A,100m , - compulsory standard: specifications for circuit , breaker govment notice Gasset 20461 of 17 September 1999.Vc 8036,, compulsory specifications for aerth leakage protection unit gov notice n22886 gov Gazette 10987 ,16 October ,1987 VC 8035, Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electrique cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gasette , compulsory specifications b, flexible cords ,electrical appliances notice ,sans 10142 sabs 0142 is concerned with ensureing the basic safety safety bof electrique installation , To ensure the protection of and properly and properly functioning installation the designer of an electrical installation , - the characteristics of the power supply,the nature of demand ,the operating environment of each part the installation, it especially important to award of acceptance building -process or handling of flammable or exploinsion if want safety features for installation prescribed,such features contract documents, - provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electrique installation, they do apply to the construction and safety of equipment appliance and accessories.. Foundamental safety live part test finger,during normal operation .permit normal operating conditions temperature safe 70 celcyis,90 bin case metallic part earth New electrical installation should not connected to supply include a protective conducteur, -use electrical equipment insulated, .. Installation replacement installation should accessible ajoiining premise building there is easy access to it location ,it is not like physical damage,dust moisture accumulation on liver , - Distribution board ,in case requireded sans 10142, function safety equipment number circuit road ,mounted dange notice appliance or in position stationery cooking enclo extended, - busbar bare copper aluminium conductor fixe test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2,A/mm sq for current 1600A, 1,6/mA/mmsq, I1,I2,I3 code . - disconnecting devices: Transformation disconnect switch supply disconecting devise control . - Circuit breaker: circuit breaker open switchh automatically over current protection RCD residual courent ,clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A, - Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple,surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose . - circuit.80 m sq floor area separate circuit protection according lighting circuit probably ,restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW ,to 60 amp or more it is most important 10 , 1,5 mm for lighting depending how many fiting connecting 4 or 6 ,10 MMM sq for cooker water - lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar ,6A.,250V ..A.C excepbin the case BS ,1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw,16A, single sans 164-4 ,16A,259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans ,Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m.in case aelvy 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket ,16A,6V,.. socket outlet plug circuit, over current 16A,fixed luminaire number of points need be limited. - Mixed load circuit: Disconnected close proximity 16A, /. 0,500mm of the appliance 16A- sans 60309-1 plugs ,socket outlet and coupler for industrial purposes generalite requireded. Sabs IEC 60309-1 dimension sans 337, sans heater ,16A power .. Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage,risk , fixing position. - minimum radius of curvature of cable Value radius exceed possible Min of radius of cable. Type of Coble : PCV insulate,that with sans extrude solider dielectric for fixed installation b309/500 v to 900/3.300v .,papper insulator, Type of shearing : unsheathed sheathed unarmoure ,. Diameter of cable d<10, 10<d<25,,25<d<40.. Minimum radius of curvate 3d,4,d,8, - common cable types: open wiring 250 protect above Arial cable ,surfix ,flex or reciprocal ,cab tyre,house wire -Wire size and current ratings: Core size wire size mm.sq 1to10 Current 13 to 54. Wattageb3,25to 12; - typical Appliance : lighting , powe circuit. - maximum cable circuit length at gizwn circuit breaker Nominal cross section area mm sq 1 tib16, Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v ,. 11,5;only -core size wire size mm 1,5 to 24,. - current 18 tib1000,:. Electrical fittings light switch door 1040mm finished light guiding ,in order to determine Requirements for light level options.push dimming versus ritory ,level option .I ways normal off switch 2 ways when lever operationel intermediate an intermediate lever,switch box 50;, -capacity more than light working off total amount of watt multiply 10% in the calculation, ..8x59 w dow light= 400w , 400wx1,33=533,. 533+53, 19% 566 it show 600 , socket outlet plug ,. Single or double 16 amp 16 amp -TV FM communication and security: Telephone Nd data socket bell press, TV,FM home movement detector base on passive infrared PIR,protective switch,accoustish,beam interrupting detector,glass break , vibration sensor,CCTV image detection it recommand that where possible products be used evaluation compliance. Home automation system Pre contactitemm Security interface camera ,remote view video alarm , automatically control shutter blind ,double commune, ,Light power outlets plug and monitor voltage light dining switch during the day movement detected long period time, audio climate control door irrigation, schedule sequence, integration weather information consider rainfall, outdoor temperature and soil moisture,control swimming automatically cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi, Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing 12, typical 69% of 20% 39;loss of tfo radio filter protection ,50vA to 500vA are suitable inductive dining (normal 50 ,AV timer Timers:man db appliance.. - Energy efficiency occupancy.,energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed. -Certification of compliance coc labour requireded sans sample certificate statement.. estimation years type electrical number poles current rating short fuse ,239,400 523×In = KA.. Switch disconecting. -laege plant products rate,up date,selling , Demolition compressive sans 50197 -codr analyse concrete Labour rate guidelines: concrete grade 1,2 ,skilled worked semie skill general worked ,total cost day, - wage per days . -Sub - Contractor rates Electrical sub contractor rate Description../unity// price - basic db 3 phase install ,each,R9,500. - basic distribution board install each R6,5900. -3phase lighting protec each R 850,00 - fit ripple relay geyser R859 -fit sub board build R2,759 - supply and lay 3 phase cable form boundaring metre R 129, supply and lay 1 phase cable from boundary metre 35 .00 Cable to external light metreR 69.0 Fit geser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in celling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve fit dimmer switch two way switch meter gate way , photocell shaver point heater towel, air conditioning under floor door

only, telecom sleeve,lit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water rigth light point ,door bell point 12 v ,intercom supply ,supply.. Light , illumination level ballast control , discharge lamp Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;. Geyser pressure ,pressure control valve, expansion relief, safety valve , Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400 - : Requireded.: Assessment St Peace college contract learner.skill career development,science electrical Homework class work.assessor conductor engineering. investigation invoice phenomenon development skill effect, involved designer,planer city JHB , discovery of new things , composition something chemical deal,good conduct,build expiremental learn do practical cleaner , engineering , in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark: Word to perfait 2 G generalite, successful engineering must improve the quality of life , -science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them . -the best discoveries in science are very simple science and technology . - a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science. - investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire, -engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt. -Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct. - I research in advanced field aerospace chemical. -the development lab workspace in workstation shop find tender.. -the test and verify they founding. The use analysis en everything the do such the components development.body -the involved in construction or building of new model -the ensure the operation of a plant place making . -the ensure the maintenance components of the plant part. -the offer technical support no water to go found water, -the are consentence engineering , The must understand mathematics hand science . Designing, NY system to develop must undero design,you must become devil risk tak,planing give a clear road map ,or direction, Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see observe weakness strength , inovative skill mean be creative new,be research. On Sun, 16 Apr 2023, 17:23 TSHINGOMBEKB TSHITADI, tshingombekb@gmail.com wrote: -40.required: industrial management administration, company city power and industrial electronics electrical, organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorencces light ,bulb.and appliance time table St peace college. Organigrame . algorigramm.principlev line, bloc - rougth casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes,RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport.. - critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing -education training ricelarise industrial relations, - Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good -work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase requirement n diplomat engineering. ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities compagny city power implementation visited day field manufacture technologie trade. Training - interpretation drawing electric code graphic. Purpose. Assessment : explanatory electrical plan create electrical plant , Content ,wath is purpose benefit of electrical , metering city power and St peace college workshop - how to draf an electrical. - tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited - power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch, - draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet, - plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan, -electrical plan legend Celling mounted light ,duplex receptacle,telephone outlet switch. - basic electrical plans , - patients room electrical plan create your electric planfirm a patient , Basement wiring plan --when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment , Intern of electrical distribution, -schedukes are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire , Project Schedule usually expressed in tabuled,organised self explanation. -typical ref, legend and - build drawing s: Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge i-nitial design drawings . -Construction process completed . . -Electrical drawing and schematic. -designing installing troubleshooting electrical system requirements use variouse ,line represented. - design engineering and technician use schematics to build and troubleshooting -one line diagram: medium voltage switcgear one line diagrame , and power systems single diagram. Is often drawing flow of electric. Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item - Drawing should be kept . - main control room of a -switching operation buy identifying feeders and the load they serve, - system voltage frequency phase and normal operating position line diagram, - for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection. - diagrame show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system, -schematic diagram Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit, -circuit breaker control schematic: wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram . -main purpose of a wiring diagram electrical circuit arrange, schematic diagram, - wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair , -Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor, - arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical, Symbol. Represent schema -logic Diagram: current gate and logic gate clock - breaker faillure relay logic diagram . Modern protective relays utilisation diagram to represent complex circuit process .electrical. - schedules. A buid Electronics use soldering.and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding.. Fit recess .fit wiring .process.. Control - instrument method selector design metering process I Appointment of service provider supply St peace college and city power

delivery component lab workshop part time table subject.. -introduction golbak stage St peace college . -Scopes of project: projection requireded supplies to purchase and deliver total ,. -Special condition component Subject module metering 4.purpise documents. Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internership fund student.gov -Quotation value tax (vat) project : _time frame project is to commence success bidder Firm price subject , name of the compagny quotation close Appliance and compagny subject. - item description of good part number quantity Evaluation criterion (80/20). -request for quotation number -limitation to quote supply and delivery Item/ description of good //quarit///price/// bid price RSA 001 /engineering electrical practice workshop projectye engineering open view lab test lab and workshop practical saqa .dhet training exam papper .seta . asssessment police //// amount estimation fee Total include .8modul x 24subject x3month 200 projection years aman's test experimental technology.training integrity one project .. - deliveri period Specifications requireded for project: Item, part numbe r, performance b, size,model Inlet . Outlet .2.12 - Metallic layer fabric oxyde metallic alluminuim material R=¶.l/w... PCO=vcoxl....Vco (iMax/2)...n (po/p1)x1000;;; vccmax -vcc/vcc Requireded : engineering science physic chemical.. electrical..power machine E=T1-T2/T1=100%. , VP/P=VRT/m=v..sq Efficiency=w/Q=1-T2/T1×100% P1.V2/T2=P2.V2/T2 W=W=P1.V1.lnV2/v2.. SF=4,187lntf/273.. T2/T1=(P/P1) exp r-1/r W=P1.V1-P2.V2/r-1. PV=M1.R.T Q1=m1.C.ΔT Q=m.l.v U=m.C.V(T2-T1).. (V2/V1) exp r-1=T1/T2, ¥=CP/CV.., R=cp-cv W=m.R.t.ln (P1/P2) P1.V1. exp r=P2.V2.v2 r W= m.R.ln V1/v2.(T2-T2) f exp 1= fv/V-v f exp 3=f(v+v)/v V=.f f= C/2.I V=√¶p/p=√¶.R.T/m V=√F/u V2/¥1.=V2/¥2. f=f(v+Vo/v+vz) f=1/2l.√p/m E=F/Q1=Q/4.π.e dr.. Electricity. W=Q.V.....E=m.g/q.....Ek=w=vq Q=C.V.....E=h.f.....F=q.E.....E=1/2.C.v exp.....V= m.gr/Q.....t=R.c.....S=w/F.....r=Q,/4.π>£or V=k.Q/r...C = €r.€o.A/d.....F=k.q1.q2/r sq Ek=Q.v.....e= v/d.....1/c=1/C1+1/c2.....v=|.f W=1/2.Q.v.....m=EQ=(V/r).Q....C=k.€.oA/d.....q=F/m=EQ/m=vq/SM..... W=vq=1/2.m.v sq....@=Q/4.π.r.....w=2/2.c.v.sq T=1/lamb.ln 2... Construction architecture design file development.system input unity, control memorandum ram Ron outputs CTR display print, - data cou,ram ,rim,l/o,. 8 bit but memory system.logic diagram .. Engineering potential coefficient result and reducing voltage integration buy factor 3/5.initiL x = chart capacity .evoltage voltage solving different equation, 5 DX/St+3x/5.equarion incase voltage DX/DT=3x/5.reauired output integration, full scale voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =31×0,2=0,2 A event bit D/A delivery an output current, 100mA,let B=10/20=0,5 mA ,,1110=29×0,5=14,5 Analogue computer camparebdigital computer .. Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binairy number changing of by simple add kissing course shift language data general ..wireless communication . Metering and supplies electronics . Re 40.8..Requireded: award degree diploma saqa qualifications I'd : asssessment no meeting requireded.transcript completed supplementary subject : foreigners transcript.saqa qualifications I'd :71638. Higher qualifications. Primary registration status,saqa decision number, saqa 091/21. Registration saqa assessor conduct certificate . Saqa I'd instituts foreign.no meeting instituts accreditation saqa decission. Admni /30-39 NC's. Total credit . -assessment policy IE099-IE00.regular internal, Saqa decission 10105/14 advance diploma intermediary phase teacher.conduct... .n1-n3 national certificate engineering studies. -N1: Saqa ID6710, N2 saqa ID 637375,N2 saqa ID 67491..Entrance... I'd saqa award diploma N ... Ncv assessment plan isat . 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,.. topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...training exam rwiten permit and time table practice exam days. Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode.. Isat integrity practice..time frame .allocation require .. 41.1..required city power vacancies Estimated ICT service Research inovation: -table of content . Graduate internship Training center employee.visitor student apprentiship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training. 1.city power vacance 2023.for officer special and variations use career opportunities. Training oppoy . metering guyser . light city .training engineering career. 1.1 How to apply for city power vacances 2023.. student career granted. -meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training partnership test . outcomes career student generation power station transmission trading . - city power workplace ready to light up career artisan engineering. -name of profile - city power . -manager vacance. -city power officer vacancy. -city power specialist.. 40.10..requirement : implementation -- SAQA module award diplomat -Award diploma n.engineering electrical -Award instituts foreign decission saqa -registration .award saqa n1,2,3,4,5,6. -Award meet documents. -Assement assessor saqa conduct moderator I'd: 202001305040/20191130002 Dhet exam nated: 201000203812/2004007064381/2011007434332.. 40.10.1 requireded of work experience logbook instructions programme code 5090840..national n diplomat.engineering studies electrical I'd :90674.engineering studies NQF level6, 360, credit saqa learner I'd 67043 national electrical engineering nqf .level6..learner name :tshingombe Tshitadi ,surname : Tshitadi Fiston. Number employeer : Details compagny St peace college city power: Name signature... Trade test technical environment Date : ..... sign... 1.code.wA.0201 Purpose asssessment entry Scope. Assignment question answer assessment evaluation qualifications St peace and city power metering Interpret technical drawing: .evidence checking the drawing confirm relate equipment in accordance stand operationel procedure reading information written . Design db box outlet socket . 2.undertake numerical undertaking numerical operationel geometry and calculation formulae Scope . Terminate and connect electrical wiring Date . Signat Material conformance checking and existence new installation site correct location. Specifical W0302 checking existing and new installation .making terminal,connection. . Specifically . Manufacture.adjust and fixing wiring support tagging and labelling cable,wiring ,conductor and connection .undertaking , specifications testing of wiring and conformation to specific . Connection for conformence to specifications.use language . - interpreting circuit,drawing .preparing work plans in accordance with legislation and regularite requireded stand operator.using measures for installation testing electric wiring circuit .testing wiring enclosure and support system .indentification compliance relevant ,energising testing installation identify rectifying.completing report and documentation using short circuit comment relevant terminology,considerant plan Ning rescues or provision of assistance,isolating electrical hasard safety changes controller operationel parameter , Conditions air and refrigeration electrical special dues trade that lead diploma need experience , -Construction high voltage installation . -substation , -pane wiring Armature winding , -A. Running test function and recording fault and or equipment status indicated by buil in test function . equipment sub assembly, components connection and terminal , -removing replacing components and termination for confoi,isolating electronic , returning calibration electronic equipment sub assembly.recording ,obtening relevant circuit ,schematic manual ,isolating tagging ,and verified.refitting sub assembly , -specifie sub assembly,schema electronic recommissuoni g electronics equipment ensure,entering routine electronic ensure conformance, -drawing reading drawing job . documents listed.maintenance .single phase. -Repaired control loop system look evidence that confirm skill.obtain and interpreting engineering specifical technical information software hard .data diagrame historical to system components and operationel. Consultant system other relevant plant personal with respect to control loop characteristics. Confirming function malfunction of the system. Component . checking operationel character controleur device,signal conversion instrument and final control element . . identify fault the control loop for correct operationel .monitoring the response of the control system , using appropriate fault find diagnosis technicien and procedure throut technical. Monitoring Comparing collected data.operational. -engineering , dismantling ,service item setting appropriate test and calibration equipment w, control mode checking control , install

engineering . dismantling..service item setting appropriate test and calibration equipment w..control mode checking control ..install commissioner the control interpre data calculating control loop characteristics.install calibra.access and final control accessing data sheet. Circuit.diagrame engineering.install sensor..identify cabling conductor .locating inspecting .. Criteria Trade manufacture seta merseta sasseta accreditation .saqa assessment training -Job instruction engineering electrical St peace colle and city power electrical wiring .statutory and regulatory.connection support.. Method material.test wiring for approval work Learning technical outcome.self checking ., -activity log sheet.state following equipment hand tools . Desoldering tool soldering fiting welding pencils Activity :voltage power supply.long Bose portable electric hand drill.drille EXC. Flat screwdriver used driving or fastening positive slottel scree.flat screwdriver is used in driving or fasteriing.join two support lead melted around,side cutter pliers used for cutting or terminal wired testing .soldering .join cable .chisel.resistance .ms program.. -hNd tools label program.criteria .score .identify.tool... Terminating and connecting electrical wiring and electronic circuit.test termination . asservissemnt criteria. Practice... Dhet..faculty electrique engineering. Completing diplomat logbook.application application - Subject : electrique trade theory, industrial electronics, engineering science, mathematics, electrotechnique drawing engineering.. -Logbook cover page.: St peace college Exam internal assessment and external -application letter :diploma St peace college assessment circular irregularite final award saqa qualifications award diploma , certificate.vist city power training career inovation trainings -Letter from your employer.career St peace college trade practices assessment engineering.policy practice school engineering. -date period work specifically subject n6; qualifications irregularite..regularite assessment.. Portofolio evidence Poe: asssessment policy evidence low -Candidate work 18month St peace college time table trading practice asservissemnt criteria saqa. Completed duty . -Duty city power St peace career patrol . Certificate I'd -Summary: academic info n4.n6.. Irregularite assessment police Poe's relate low . Copy statement 12; subject n4.n6 .. Subject condonation award.subject irregularite trade theory .. transcript academic time table.. maximum one, 2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in government departments ..qualify development social.energy . education department asssessor, instituts : . Uity description Yes /no Regulation %= (220-210)x100/210.. Equivenlent transfo..E2=I2.Z2+V2.. E2-V2=I2.Z2... *estimal 20kva,2500,500v,single phase tfo.winding r1=8ohm .x1=17 ohm. Wining R2=0,3 ohm ,X2 =0,8.. primary voltage 2500 ,. O,6 solutions E1=2500v,R2=500v. Turn ration N=2500/500... Ration =E2/E1=600/2500=0,2.. apparent power s=20kva,. I= S/E =20kva/500=20×1000/500=40A.. - -refering to secondary side. Ro2=R2+k.square r1=0,3+(0,2) square×8=0,62 ohm Xo2=X2+k Square=0,7+(0,2) square x17=1,380 a) 0,8 lagging Volt.reg v=12 Ro2cos #+I2×0,2 sin @/E2.. Volt reg = 40×0,62×0,8+40×1,38×0,6/60 VR=52,96/500=0,10592,. % VR =10,59.. Secondary terminal voltage. V2=R(1-v2) V2=500(1-0,10592) V2=447,04.. 0,8 of leading. Voltage vR= I2 to square .cos@-I2 X2 sin @/ E2.. VR=40×0,62×0,8-40x1,38×0,6/500. VR=O,O2656..%VR=-2,656%,,, Point to key Secondary terminal voltage. V2=E2(I-vr) V2=500(1-0,02656)=513,28v. VR..VR=12Ro2 cos @+,I2Xo.sin@/E2. VR=40×0,62×1×40x1,38×o/500. VR=o,o496...VR=4,96% V2=E2(I-vr) V2=500(1-0,0496),,v2=475.2 volt.. 40.6 management multiple backroung task and interrupt driven system. Clusters system information connection . Monitor display , basic knowledge suggestions reading embaded engineering electrical. -basic circuit theory ,fund arrest ,how to configure pin microchip microprocessor Hard basy trainer bird work station PC running windows Mavis Linus 13v DC motor power main gate gate mplabx cross compiled spreadsheet excell log entry visited internal external St peace college engineering access and city power access meeting agendas menute . estimation - project takeaway : how to read analogies voltage compare to implement a capture period measure fundamental digital,open loop and closed loop process control , _ fundamental concept unit introduce process control electromechanic I/0. Process control: automate process control engineering deal architecture.. Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal yes amp ,signal card , process yes ,tacho meter yrs , open control yes record count positive yes , ,, 40.7 maintence inspection: components program, -inspectiins check operationel back , -inspectiins lighting inspection:bulb regulatority exam control ,transformer hardware and and gasket exterior light, Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing equipment timers and photocell, should be inspected and exhaust fan, HVAC inspection bfiltrrbdict filer 41.purpose. Study case ..St peace college energy rurale and city power energy. 4.1. Electrical grid system design to provide electricite way from it generation to the customer system ground from design kilometre and connection countless complex interconnect. Workplace workshop practical projection ..lab system fundamental Test problem requireded.. Eskom and city power , - generation electricity ,power plan warn to convert mechanical energy of turbine into energy use generator except solar power , photo voltaic cell ,power plan ,energy fuel. St peace college workplace. Test lab experimental practical. Result recording operationel: kWh ..kV..day - transmission :large high power line are crucial component .power plant pass through stepped up voltage voltage increase in electricite by transformer .by distance with typical maximum distance. Result recording operationel test. kWh .kV.ka day Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy problem acceptable level, Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial power plan and medium size power plan 1500 me..interlock 110kv and up . joint connection distribution grid transformer 150mw power station metering city power plant , 2mw industrial custome power station , solar farm ,eolien farm ,rural 400kw,50kv transfo metring buildings house dispatch . Estimation const inspection area building infrastructure. Test lab open views stwich gears inspection fault .circuit breaker fusible ,Relais Power system of electrical increase descrease note lab Supply test month average costly Methods use for switch control circuit during normal operation, permit to switch off on the generator ,transmission distribution equipment. If faillure occured short circuit heavy current pass.feature switch . Switch operate in order isolate health system b, discrimination,,switch air break switch medium, - oil switch they operate in oil arc that occurred fuse joint ,anormal temperature. Daily week time open ,time close date - circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manuelly can opere under high voltage type current . Test day daily month , -relay: is basically a device or switch detect fault system then it provides the information to circuits breaker , - can operate to prevent the health . Primary relay is connected Relay trip circuit ,relay electromagnetic induction test , Type of switchigears,2 outdoor type,2 indoor type,66kv .. Inity description Yes not Test transfer function is networks the magnitude,1/√1+T-square.Csquare. phase shift network.. Vi/Vo=1/RC/JW+1/r.c ..test close open system .. Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor . - NS =120f/p, f the supply ,p is the number of poles in machine, Working principle key principles key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine requireded,machine two applies one DC , synchronous machine operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit , synchronous motor relative, , Test daily week time load Relever trade. Integral derivation day Equation of sychronouse motor . V=Eb+Ia(Ra+Jxs). Voltage v.eb back EMF .is armature Ra armature resistance .on system day working duty shift -resultant voltage: difference between the voltage applied v.and back EMF, E=V-Eb,. Er=Is. (Ra+jx.s) Back EMF generated: Eb=ka.¶a.Ns ¶a= constant of the armature,¶acmagnetic flux perpoles, NS = synchronous speed of the rotor .En=v normal excitation lagging power factor EB<v under excited.over excitation. Input power: input of synchronous motor .Pin=v.Ia.cos¶ per .phase .Pin = √3.v.l.Il cos 3phase .. Mechanical bpower in rotor Pm=Tg.NS Pm=En.Ia.cos(a-¶). . Pin =√3.vl.il.cos¶-3.I square.ra.. Pm=pin -Ia.Ra.. A load angle between en and v, angle between band Is ,the is gross torque products .Na is per synchronous. - stepper motor Ster angle ..£=(ns-nr/nsxnr)x360.*

Step angle the angles of rotation of shift .NS = number of stator / number..poles .Mrs of poles Motor asynchronous..nr-ns/NR slop squirrel..star current as..z.c .p. DC motor machine .. Resolution 360degre/ beta accurate of stepper .n motor speed.n. Requireded learner induction machine system engineering electrical St peace generation GB ..machine system hr resource compatible run .-transformer three phase Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power . Y...VP=Vl÷√3. Vol=√3xvp... D. VP=vl...vl=p.. Y.Δ. Turn ration TR=NP/Ms=VP/√3.v.s..... 1/2....step=1/,√3 Δ.y....TR=Np/NS=√3.vp/v.s .Delta delta line vol primairy secondary vl~n.vl...line current primary IL/n. Delta star vl √3.n.vl. ..Il = IL/√3.n Start delta ..vl_n.vl/√3...IL=√3.il/n.. Start start vl =n.vl I=IL=IL/n... Estimation data 50 Va supply,line voltage 100v , primary turn 500, secondary turn 100, n=NS/nP=100/500=0,2 ..vline sec =√3xnxvline =√3x0,2x100=34,64volt -V phase sec = v.line /√3=34,64=√20 v. ILine (p) = Va/√3.v line =50/√3x100=0,289 Am.. I sec = ILine = ILine (per)/√3*0,2=0,834 amp.. construction... Transformer voltage regulations.. Voltay regulation or percentage value by which transformer output terminal voltage varies, up or down from it load value... Condity when IL = 0 open circuit to fully load IL= iMac maximum current for a constant primary. , Regulation=change in output voltage/ no -load out voltage Regulation = v(no load)- v (full-load)/v.no -loAd.. - percentage % reg (down)=v(no-load)-V(full load)x100%/ v no load . % reg (up)= v(no - load)- v (full load x100%/v.full load.. Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transfo regulation ..0,005 or 5% ..(100-95)/100*100% V1 <E1...E2=I2.Ro.xos2+I2Xo2.sin&2+v2 V2>E2..E2-V2=I2.Ro2.cos2+I2.xo,. Capacity load x 100% 40.2 required purpose.control .lab -introduction lab is to investigate application of embedded control controller to real time algorithm that employee analog input and anslog outputs engineering electrical St peace college time table and city power training days care computer algorithms to implement a closed -loop processor from machinery or motor speed hortorinh .conduct system manager security physical.hin feedback can used to lineare inhertly non lineare process and results in zero steady state control errors, -objectivity assignment engineering electrical time table and training city power St peace college. 1.general power output to implement system management variable machinery motor supply voltage. 2.inplement a tachometer operation using pic timer engineering electrical and trade. 3.develip program code academic to implement a picture Requireded: 40.1. requireded: case student training practical school and practical schools engineering faculty, saqa registration .setat registration St peace registration Practical school learner secreatairy help school efficient ly by performing clerical task support principal,work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors,students making appointments,maintening student record handing incoming and keep the school website event update calender ..St peace training and city power training to city calendar. 40.2-question how to construct impressive teacher Portofolio learner training . Portofilio evidence.career job .degree scotllande . 40.4.education leadership and management .St peace college and city power management trainings work subject. -School engineering electrical training practical governance .online master of educational management on line honour leadership inovation.bucheler saqa qualifications award degree diplomat learner practical, -40.5 guide formative training homework qualifications saqa diplome d etat homework back laureat Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admnission . logiciel Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family. -Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes -management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports In city power external training job - management schools fee bursary Engineering.step. . -principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject. Test PC school air time -functionnality test education program .note globally service global services client . functionality,rapport .quality. Administration at peace collt give .the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress . The level students adapte situation place social development projects government state teacher inovation democratic acess in the age of leave work children. child care . level diplomat. Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprentiship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile .filing animation social model .-.the administration workable of Poste school . description post admnistrator supervisor.task school admnistrator college etablissement good function to teacher vocational and the trainings . Task functions.budget manage logistics give line to marks reference. -chargr admnise to coordinner all the process admnistrator management political and evenement .to resolving conflicts problem school in training external.to response counseling students resolve conflicts -legislation school subject after assessment Portofilio evidence learner excepter deall misconduct pffense discovery learner in St peace College. To city power work. have definit school domain show management recruitment registration new students or contract news compagny external internal composition commission and differente ., - counsel teacher difficult entry dismissal.procedure.prise , Commited management schools circular framework.importance, - to have definit sanction and reward primary deceive procedure input in case of abandoned post graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill development implementation learner.in St peace college.hr ruling . -practical school report rwiten efficient parental learner in induction learning student at peace college to going to city power to complete a project class assignments.assessment year report primary tracker run circular summative.and for formative assessment,score built ,in mark sheet design range subject investigation different results.expectation accrose range assessment results.defineed and speedly asssessor workbook strategy report run regular census data cloud policy, - week course audiovisual and social class room creation ICT technology digital tools learner critical digital literacy , -international studies in educational inequality theory .skill student basic employee in access to different level level of education academic understood generalite theory outcomes system worked primarily school junior .ethic deontological generality legislation school ruling resourcereality legislation school and principal admnistrator act importance in saqa qualifications citysen to frequently industrial. -Duty of chief college and department management schools, . political public education state evaluation,control priority norm posterior.level organisation type model office bureaucracy. _flexibility of circulum, -caracteristic of students and training St peace college to training caracteristic job compagny city power,to give a good operationel results projection goal target day visit, -management leadership measure political principal objective professionalism in job training caracteristic direction ordering collegial.counseiling director . Management intermediate division organique function authority administration directives, professional and pedagogy training, execution government, judiciary low . legislation low schools.functionnel authority teach assure orientation coordination pedagogy -.situation curriculum flexible examen national Central administrative contract d 'autonomie protein project study chief of .changement of authority power of teachers society civil offer influence democratic in circulum asssessment.and training examinator \ Engineering electrical power ka Research college engineering career joint gov compagny department. Implementation time table Framework College to company electrical engineering low Name :TSHINGOMBEKB, Cvs title:*

government and education job engineering college job duty: Section 2 Tshingombe Tshitadi engineering electrical engineering electrical implementation time table to job time company experimental trade tshingombefiston@gmail.com Phone Number Education Study Program st peace college 10/2020 - Present , jhb r Courses engineering electrical Work Experience Title/Position city power training /st peace college training 02/2023 - Present , rsa engineering electrical visited work place training experimental Achievements/Tasks award degree diploma saqa/ award panel wiring electrical Contact 1.content: engineering electrical career project officer outcome legislation government engineering gov.city municipality engineering theory and practical experience 1.Researcher requirement job study 1.1. Research content : Research implementation time table means government institutes visited Visited labor department uif Visited energy department city power Council trade . council engineering education department. Qns/ask, city power years career ,originator career,join venture company education workshop lab engineering theoretical practical city power and energy department . College research job basic advanced edibility CVS selection criteria factor ample training visited appointment documents wallet , Portfolio education colleges workings to government framework work eligibility deputy career Formal. -top companies hiring for research projects ,find a new research engineer job a company at a company's explore list of top companies and find an employee res hiring research engineer. -location global company size 100 industrial. -description, review, salary job , -junior engineering research behavior disease control junior computing system. -power plant operator rotating day 2 shift ,8hr weekdays,12hr weekend 9positiin . -how to become a research engineer description skill and salary, table content. -what is research engineer. -Research engineer vs. research analyze, -research engineering roles and responsibilities. -research engineering skills. Research engineer in various including defense Communication electronics Energy manufacturing. -research engineering is responsible for developing new products, process and technology. -innovative companies, organization and institutions. -career as research engineer might be rage. -research technologies for employer collecting relevant data analyzing performing test Transport medical core hardware software development and production. -research engineering vs. research analyst. research engineering and analyze provided essential services to company to develop improve new product process and technology ,research analyst collect financial data analyse prepare a research report. -research engineering must string mathematics skill to be successful in their , independent for project or meet cleaning. -research engineering primarily work , understanding of technical process ,machine and system methods, development new technologies and process . - create experimental research evaluation data machine alfo -research engineering roles and responsibilities. -research team idea reality interest research and development create new technology. 2.dutee of are search engineering vary depending types of positions held generally. Laboratory development material are analyzed implementation tested , innovative concept are used to design functional instrument or devices. -writing research proposal and maintaining contact with sponsor. -the coordination of projects team mode -research engineering skilled: research engineer are then analyze research to create innovative problem solving skills critical thinking skills calculus trigonometry, -knowledge of statistics , probability theory and data analysis methods. -research engineering salary. The average salary. -qualification: -3what advanced engineering: Overview, job, salary, skill. -3.1.Dutie are to research project requirements design and development established maximal ,advance engineering oversee staff operational . Place work general duties are to research project . Knowledge of products designed manufactured asset. -position advance engineering advance entrant as senior an . Advanced engineering had scope of knowledge. Engineering average 45 hourly salary. -Advanced engineering jobs: advanced engineering career paths a long your career taking responsibility leadership role using our career map, career goals, the career progression , senior engineer ,progress to a title senior. -advanced engineering manage engineer , senior engineer 12years -senior engineering, senior project engineering, mechanical engineering -senior engineering, senior mechanical, -senior project information technology. Principal engineering. Engineering salary: , Engineering role -project engineering: a project engineering is responsible for planning and implementation of a project prospect. -manufacture engineering: work industrial or design cost. Number of advanced. -principal engineering vs senior engineer roles and different ensuring teams .collaratively research design , analyse,and inspiration structure client requirements, -specifie projects field experts between. -principal engineering is an engineering professional many year of experience ,oversee project staff working ,role principal leadership c project time budget. -Do planning engineering department in task like research and design . -determining department goals creating implementation plans. -providing expert advice to other engineering. - creating and managing engineering budget , - negotiate contract vendor , implementation process. -senior engineering earn title handling several projects simultaneously performance task of engineering. -ensure teams apply concept to -Generating report and writing project proposal. Presenting design and research to customer. -advising staff with process recommandation . -negotiating project management -junior vs senior vs staff engineering career progression is a topic. -junior engineering level engineering focus mostly. Demonstrating the coding capability, Level understand code base and drive assignment requested to improve it migration framework, adding test design well organisations. -Task disciplines designing. -senior engineering.bea able breakers down and complete a project of a large scope with high level productivity. - proactively find problem of existing system products, be able to load .project with build activities like interview. -staff engineering: engineering identify solve a technical problem. -be able to implement the hardest part of system products. -be able ship high quality work, practice.assess , additional demonstrate. - engineering grades , ranking job title public sector level of seniority. - engineering schedule gov, Engineering ranking.engineer in training. Engineering intern assistant engineer , junior engineer staff engineering engineering instructor . -responsible : for grade from basic data collection working on small projects, adapting metho to finish work , . level6 employee beginning need guidance aspects job , senior employee complex. -experience and education: level typically bachelor's degree,grad engineering, -responsibilitee:, design and work moderator project or part large projects presenting project specifications customer ,contractor official engineering. -experience and education: 4 .electrical engineering : do designing and building electrical equipment advance technology outcomes includes electrical skill improving products. -creating electrical engineering meat, mathematics abet , emphasize,your skill focus . Resume structuon. Experience over 10years power station transmission and distribution technically -skill specifical: Circuit design and java programming contributing to developing a large hydroelectric installation an experienced team manage circuit , -an experience team manage circuit . Skill technical autocad circuit design electrical measurements. -workplace skill communication critical leadership innovations. 4.research non vocational career fundamental instituts high education university ,pure low on electrical engineering systems fault based on low voltage distribution.power supply. Analyse network is it safe operationel level affect economic social benefits of power supply. -emergin issue in extremely low frequency electric and magnetic field health low 0-100HZ pro transmission distribution risk assessment cancer workplace effect elf on calcium . -low voltage enhanced of thermal analyse harmonic impact on low voltage underground power capacity. Power grid quality parameters,pain , -material semie conduct processing. Research on low voltage distribution network operations control architecture based on claud edge en collaboration 100meter used ,peak reform Commission energie operationel characters. 5.Best career advice for aspiring electrical engineering expect from job electrical engineering life cycle of electrical project design phase delivery work. -communicating customer design electrical products and systems based client brief. -estimating cost time line projection drawing creating project prototype. -estimating cost and timeline for project delivery. - interpreting technical drawing and design specifications. -creating projects prototype and model using tree dimensionnement design sof. - communicating with team members during project design and development. -designing and performance test to determine with products and

systems meet standard. Recording and evaluation test data. -proposing electrical products and systems modified improve quality. -restesting electrical . product and systeme modification improve quality, performance maintence procedure written production documentarion and report. -Giving presentation about project. -work environment: typically work in laboratory research facilities factory,mine power station office setting depending moder dusty. -schedule 40hvbusiness work , -skill engineering job description problems solving skill electrical engineering must solve complex problem troubleshooting,creative ,fine new decisive project -Assessment guidelines orientation: Engineering orientation vocational Conductor learner engineering. Learner except employment Assessment policy : engineering conduct policy engineering electrical tpm 6.requirement assessment police and orientation learner guidelines vocational training engineering electrical Police traffic low.assessement engineering. -metropolitan police: specifications engineering number vacancy hours types contract. Vision job advert band. -police and crime plan changing operational demands affect the sizes, make up deployment fleet met are currently exploring option to support the acceleration decarburization to achieve net zero carbon, by 2030 over 750 alternative fuel vehicles already zero -emission capable vehicle transition away from reliance on petrol diesel 5000 vehicle, 10000pedal cycle, 25marune vessel, officer and staff to carry job workplace safe environment for transportation public prisoners. -vehicle. Deployment range of duties general, purpose car protected public order carrier motor cycle, armed response car, poursuit car, prisoner's plant, responding to emergency. Mall fleet services provided professional. -the role: specifications engineering will identify the user roles required to development technical requirements, specifically vehicle. -key responsibility. Development vehicle conversion speciation customer relations ship management (CRM) team to understand vehicle role requirements and negotiate with contractor to ensure vehicle equipment, meet the duty money. -acting as design authority development maintence statement detail building. -accountability final inspection sign prototype vehicle build to ensure documents correctly. -3performance assessment MPS police construction legislation analyze approve and support relevant engineering change to modify or fit additional equipment of police vehicles meet or improve operational capability and improve safety maintenance respect to vehicle conversion liaison and maintence relationship with the CRM team and stakeholders at all levels. Ensuring vehicle design or building queries are reserved. -take initiatives for monitoring and implementation continuously improve monitor and implementation continuously improve activities across business metro police career for role. -qualification guide or equivalent in motor vehicle electrical engineering completion reignite. Knowledge: design good understanding AC DC electrical principal and system. -result expiremental.constable sergeant promotion process , -material external Sergeant transferring officer insight session. -SAPS gov.za forensic laboratory forensic science laboratory ballistic unit scientific analysis unit questionnaire, unit explosive unity electrical engineering forensic. Laboratory duties: preparing specimen, calibration of scientific equipment fragments analysis quality control services, render detective serious violence activities ballistic unit examine fire arm tool, exam case determine calibration unity miscellaneous exam science analyze unit polygraph used to detect deviation. Investigation fire exploinsion DNA drogue. -policing and low enforcement technologies intelligence artificial automation big data evened reality technology smart devices case computer version detection of crime before happen research an going applying to create prediction algorithms CCTV, robotics enforcement dangerous technologies probability autonomous ,radar system radio , -orbital solar power plant for energy base research spatial energy power plant private sector project.. Career police development system engineering electrical. key Investigation conduct logic case argument design crime .resource data base...crime engineering electrical manufacture design engineer fault find system.analyse key logic form supply Form sheet line judgment police statement control logic system.claud. Processing crime engineering electrical and design supply inspect affidavit, for clearance for complain form system indicator docket documents database electronics Manuel judge book PC system record system analyst caracteristique system function . 7. Requireded: power meter technical, metering calibration laboratory sans class 0,2s Single phase certificate. -arced Is/IEC 17025 sanas lab capacity to calibrate large volume electricity meter and provide a valuable meter certificate Eskom municipality meter. -benefit awarding of metering system possible to guard. - analyzing smart metering system from a consumer. - sans forensic calibration lab award a contract by Eskom to perform forensic calibration on meter suspect temper SPS services insure evidence chain custody is clearly the criminal or civil charge are brought to court -measure to improve public acceptance of smart metering system designing and development critical infrastructure power grid project. - Architecture and data flow model for consumers orienteer smart metering... Survey advance metering infrastructure. -survey advance metering infrastructure. - Move framework for cloud energy metering initiative attractive research proposes a cloud energy metering system precision meter. - reduce concern related data smart grid. -7.2.testing desktop application police station information management system: society control low management criminal record information Manuel development improved a desktop application record keeping for the police station is secured and functional software . Test and analyze. -the system deployment, performance the testing of application automated testing tool the function performance, testing, reported the results of case pass or fail. -login empty username ,police officer empty, test yes, test duty yes, resultant yes, email yes, , search with invalid yes ,FIR appears in grids add button mandatory fields, critical design by proper code, prioritization test cases, ms windows, general test, graphical ,user interface field frame scenario window, test environment, -processor 13-2310,ram8.00, system type 64bit,operating system, code user name votes code ,test case I'd, engineering, step expected software engineering. -advanced in smart grid power grid power systems, axiom try. -Customers are basically, 3types namely power commercial building consumer building or sector and industrial power sector power, 20kw building, 20-200kw. -home network to implement monitoring and control and to implement new functionality DR, customer a saucy two way communication interface, -brake test cyber security for the smart grid electrical power grid level, generation services electrical power level generation services distribution, service provider creation mechanism. -smart metering system optimization for non technical. optimization for technical losses reduction consumption recording operational improvement in electricity sector -power supplies, consumer smart metering system, energy regulatory, power products -state holders involved in smart metering adoption factor, of intelligent sensor for measurements related to cost reduction implementation intelligence measure system project. Smart metering architecture and implementation modern system mound node of the network, substation, power exchange substation power distribution point between transformation, station or the point of the power network for recording energy consumption in real time .to, the network operator. -power line communication network PLC -RES--SM, power line communication residential smart metering residential communication smart metering ,gate way ,GPRS,GSM basic residential smart ground, serial current loop communication, power station renewal energy power station public institutions , energies power station metering system DB-SM ,energy consumption . ΔUri=n,sum 1=I (RiPi+X1.Q1). F(€rs&Δu,Be,two)=Mp(€r)+VP(Δu)+=(n,sum .j=1(sum I=1.(ki.Ci.€r.j)+(BWI(t).-wie.. - number of transformation station number of consume from transformation station area ,Mp(€r). Metering function precision as €r optimisations vector variable, VP (Δu) the power failure Δu optimization vector, ER Pp (Be). between measure electricity registered in data base, Ki coefficient determine based on previous. Ci coefficient describing node I, design Ci coefficient describing node I degree of connection disconnected. -€ri described a measuring error of power metre between +-0,5 in the case house hold consumer. -€smc represent the value indicate by the precissions class of smart meter wi-node measure energy, AEtj estimated technical energie loss , power meter from transformation station &Δu , coefficient determine by voltage drop,Δu, coefficient determine by voltage drop registration error node. -Po the active of consumer related to note . RI the electrical resistance

of the electrical the connection of each node node , Q1 the reactive energy recorded power ,UN nominal voltage,Bei -error coefficient of data transfer between the telecommunication systems and the data transfer between the telecommunication systems and the data storage syst Wi(t) , activities energy record in time twri-error,reactive inductive energy in analysed time interval T, Wir the reactive energy consumed ready time model data offered by, the remote reading system implemented ,track real time energy consumption, record node comparing ,blind spark algorithms for optimization. -main branch connection false Colum, shunt at croup. Experimental measured, data and optimization resulted energy fore cast be recover year out of total approximately 1560, 09of losses research 1560 measure and optimization. -intelligence measure j -input :balance threshold , reading group output : resolution 1 procedure: mismatch patter identification Netware weir 3 feature coef search () 4 return features xoef 5 end 6 procedure analyse (features xoef) 7 begin 8search affected zone() 9search affected point () 10 resolution match issue () 11 return resolution. 12.end 14 procedure main() 15. 16while true so For each grid €reading group Begin Read energy rec BAL computer energy balance For each bt€balance treshold group Feature coef .missmatch patter resolution analyse feature -case study detection non technical energy balance. Research integrity frame work college project compagy and university high school topic policy asssessment, orientation Assement , methode research Outcome: teacher lecture career skill Checking engineering electrical and technical trade , -grade level and topic electricity,/education technology, technology electrical technologies, task ,for of assessment project/research tool:, subtopic substance ,mark allocation 70, -report follow structure: education technology power city grid transmission, Technology electrique city power transmission, are created news -introduction: technology electrical ,and education technology, principal electrical engineering, model Low mark allocation. -body , education technology ,technology electricity transmission development -Conclusion : Resource extra research, visit local library book and magazine news papers, search internet, education technology, interview N engineering, teaching. -project/ research : education technology implementation -cover page ,name grade and topic Learner and student college basic advance filling Education technology, engineering electrical -content index: Introduction investigation and discuses in the report body- Definition of education technology City power, company mean low transmission, low substation, low Ohm joule effect, reactance low , Circular assessment activities: -assessment, subject , moderator, instruction, write nearly legibility education technology, Cognitive level questionnaire number mark, knowledge recall, comprehensive, application,analyse synthesis evaluation,100% -Education technology, engineering electrical career offers to college principal seignior teacher. Tendered value career total education trade consul bodies insurance bulletin -Trade engineering diploma theory practical meet theory trade test score job testify low , examination theoretical statement mark total attested / posted site / evaluation post Trade test and examine national diplomat engineering, duty employer post Subject time table allocation level Theory Trade test Mark award 100% Practice Trade test award 100% Exam National Theory /test award 100% Exam National Practical/ test isat award 100% Grand total Score 400mark 100%, Integrate assess score Min/max saqa aard qualify N1/ -trade theory electrical -indust -electro -eng-science -mathematic N2/ --trade theory electrical -indust -electro -eng-science -mathematic - - - N3 ---trade theory electrical -indust -electro -eng-science -mathematic - - N4 --electrotech electrical -indust -electro -eng-science -mathematic -electrotech -logic syst - N5 --trade theory electrical -indust -electro -eng-science -mathematic -electrotech - N6- --trade theory electrical -indust -electro -eng-science -mathematic -electrotech - - N diploma -electrica enginering -total Career - - Yes/not Test total average License Theory 80% pass Test Average License practical 80% pass License total diploma undergraduate n diploma License Average Undergraduate N diploma License total License 50% pass Employer graduate close outcome license post engineering seignior, junior / years amend Section 2 Engineering electrical career job workplace office place engineering outcome ,trade engineering outcom,education tech ingenieure work partnership visited meeting engineering, inovation college job functions,to government industrial experience function job.and gradient function job industrial engineering electrical and social development. By : TSHINGOMBEKB, tahitaditshingombe, me, tshingimbeKb Seminaire session day confereence meeting café topic day Presente : study governance career Cvs title: governement and education job engineering college Job duty: Section 2 Tshingombe Tshitadi engineering electrical engineering electrical implementation time table to job time company experimental trade tshingombefiston@gmail.com Phone Number Education Study Program st peace college 10/2020 - Present , jhb r Courses engineering electrical Work Experience Title/Position city power training /st peace college training 02/2023 - Present , rsa engineering electrical visited work place training experimental Achievements/ Tasks award degree diploma saqa/ award panel wiring electrical Contact 1.content: engineering electrical career project officer outcome legislation government engineering gov.city municipality engineering theory and practical experience engineering 1.1.scope of work workplace engineering career 2.summarise: assessment officer outcomes education technology engineering : government .minister deputy government . framework mandatory compulsory student order.in order to determine research college order to work.and regulate - home affairs department ;.general requireded work visa for temporary se jour time .v.fs.apppinrment letter completed valid ,pass port ndp critical saqa ,webmaster .. Education department dhet basic..permit student . Council education council trade . engineering council Department labour and public work Development.skill...juatice development Power attorney.dol I fracture social development Department defense .police safety security Sandf.saps psira seta permit bargaining sector competency fire arm gun operationel -dti department trade industries.sector non proliferation the department of trade industry ,of weapons mass destruction council ,regulate strategic, protection interest , government control , implementation student workshop place visited ... -Dmr.departement mineral energy..electricity sale revenue and prices power plant ,fuel use ,stocks,electricity independ ,national treasure economic sars department of energy mandate responsible ensuring private sector participation in pour generation through competition bidding process come regularity primary source development electricity sector -department of science and innovation ,socio economic development goal,resource scie bono center career. Programme administration technology innovation cooperation. - programme research development support. Purpose knowledge.,.strategies,objective, developed humain generation components Basic science infrastucture implementation of research inovation equivalente,science .mission . astronomy. R tax incentives ama. Department economies sars economies empires .. - national energy regulator of South Africa authority mandate ista regulate the electricity piped gaz and petrol ,consolid jurisdiction Coe chief officer legislation , invitation to comment amendment 3800 mW ministerial determination invitation comment net billing rules development , tribunal,info@ nersa organ. - electrical conformance board ECB, South Africa ,designer ,installer and the regulator custome , - for profit find reseller cocs ,outlet online keeping for your client ,tech competence implementation dissemination stand ,address,standard,,, Department economies: How much is the total power supply consumption of ATM click 24;,5,52kw,, Unite rptibke power auplie in banking and finance sector power challange ATM ,cost consume ATM 1,3kw auxiliare automatic teller machine ATM custome size 2.2. Abstract job work: function job work ,function gradient function function 3.entry engineering electrical trade infrastructure implementation support Qualifications career category job skills: 4.purpose asssessor criteria recruitment job ask career education and training engineering office case study. 4.1 case study how to make calculation for a distribution substation 1010,4kv,2x1600KVA,mean introduction substation with an installed power of 2x1600 KVA are a typical,electrical power supply facilities which can value of all relevant physical quantities shall be major equipment inside .-basic guide for calculation dimensionning will be adequate IEC standard and practical engineering experience,of course be side electrical there civil hand HVAC heating ventilation and air condition air. -requirement. Substation which need, Continuous current calculation and dimensioning. -short circuit calculation and dimensioning. - summary of selected equipment. -

substation :when say 2x1600kva that mean two power transformer each of theme with rated of 1600kva will be installed inside substation, - strictly speaking but not necessarily 2×1600KVA designation assume on substation.capability coverage peak power demand of 2x1600=3200Kva that further implied parallel operation of transformer .I both transformer on the other hand want will be a working unity other serve as a spare designation (1600+1600)KVA , -the latter mean that substation -this example, will be based on 3200KVA peak demand requirements, beside that other major input data necessary for for calculation and designated - medium voltage rated value. _low voltage rated value,short circuit power short circuit current, number supply cables, -typical of earthing arrangements, maximum ambulant temperature single line diagram of distribution, - substation is give supplies from 10kv distribution network via two cable typical solutions for so called typically of supply Medium voltage switchigears design tag supplies power transformer design tag T1and T2 with voltage transformation ratio of 1010,4 kV power is further distributer to consumer on 0,4KV voltage level busbar system -power substation design system and calculation study engineering System planning short circuit studies load flow studies insulation coordinator study -electrical protection and and control analysis DC system battery calculation. -ac system auxiliary power transmission. Ground grid study lightning protection calculation. -light nint calculation voltage drops calculation conduit dill calculation civil structural substation design, -land survey and site grading analysis, - geotechnical investigation and foundation calculation structural , Miscellaneous substation designation noise calculation . -designation calculation transformee noise calculation harmonic analyse,fire protection, -Ask fact answe how content fault generators to grid loads flow conductor increased power, determine trip mva transmission correct power factor. Outcome of auxiliary tfo ground gride studies drive general arrangements plan drawing elevation section light. -light calculation ,voltage drop 125 volt 90,PVC conduit -outcome of conduits fill calcule wire pulled installed a combination Mont cable, -land outcome survey determine feasibility creation storage result incorporated sit grading plan drawing,site grading , Power harmonic filter non linear , Draw power. 5.purpose and requireded: engineering problem mathematics engineering -Calculation of electric field on substation equipment considering AC ion flow field ,increase of voltage in substation discharge surface high voltage conductor substation be coming influence,order stady AC substation criterion emittion calculate estimate 750kv conductor to ground distance 24,5 Conductor to 25,5 m phenomenon, - Calculation emotion charge alternation cycle discreet time step time step instant balanced applied voltage. Va=Vmax.sin (w(i-1)Δt.. Vb=Vmax.sin(w(i-1)Δt VC=vmax.sun(w(i-1)Δt. I=1,2,3 NT zero value value Va= 0 VB=0,5 VC=+0,5 the first time step (I=1),. Vmax ,..vmin Schema diagram line AC applied . E+onset = nx(33,7+8.13/√r).kV/cm E-onset=n(31,10x9,55/√r)kV/cm - electrical field gth match point conductor. Eg =3M sum Q si/2π€o[1/Rai+1/Rai.e.si] Q on set a,sum m I qci, Q onset b,sum 2m qci Q onset c ,sum 3 m ,I 2m qci 6.required: 750 KVA Conductor,19,5;Min not , calculation motor starting calculation - cable designing program, -calculation home electrique load electrical bi. -calculate electrical busbar size and size and drop , Calculate insulator resistance value, -calculation numbers of lightings fitting and lumen output -Calculation size of solar panels battery bank and inverter. -circuit breaker tripping., conduit size selection program -designation of earthing rate, Selection of mccb,elcbfor main branch circuit -selection of fuse and setting of instant short circuit tripping cb Sharter circuit current calculation various point. -size of capacitor for power factor improvement faulty current calculator. -electrical safety program arc flash Calculation. -E feeder and cable calculator Squared selected capacitor size voltage drops calculation , voltage regulators distribution, Resident load calculation.transformation . -power line voltage faulty power line voltage drop calculation. -electrical safety program arc Flash calculator ,power factor correction touche voltage ground electrique engineering Calculation engineering, calcule size circuit breakers for calcuationlofth, Lighting pnot asssessment regut load lush calcuation ,diesel electromagnetic. 6.requirement : power station and central system -generator KVA , measure 20kva ,3 phase generator has trues of 16(20x0,8)=16 Rating are available so KVA range of power our site 6kva,up500kva,20kva t 100kva -generator full load Curt calculator calcule the full load current of a single 3phase generator voltage 120v,3ph AC generator 2kw ,pf0,8 cos Generator faulty current calcuatir , -cable size calculator as , Parameter: ,rated voltage VP the rated voltage of the generator in volt v, Phase specific the phase arrange in phase AC or 3 phase AC generator rating, specific the generator rating kW or KVA,cos -full load current 3 phase generator specific kW. I=1000xSkw/√3.VLL.cosπ . S.kw is the generator in kilo watt (kW) -VLL is the generator line to line rated voltage in . - Calcule the full load current of a 50kw,480v,3 phase generator the estimated load power factor, 0,85 I=1000.50/√3.x480x0,85=70,8A -full load current for 3 phase generator specified in KVA is calculed as . I=1000xSkva/√3.VLL. -sva is the generator rating kilivolt amp (KVA). Is generator line .to line rated voltage in calculate the full load current of 50kva,480v,3phase I=1000.50/√3.×480=60,1A. -I=1000.Skw/vLN.xcosπ. .. Vln is the generator line .to .neural rated voltage in volt cos(π). 2kw,120v, phase generator,0,85,, I=1000.skva/vln.. I=1000x50/480=16,7A, 3000 watt ,3kw sign 120 ,of =0,8 ,,I=3000/120x0,8x31,2 I=10000/√3x120x0,8=60,1A,,,3 phase ,240 generator, I=10000/√3x240x0,8=30 7500w generator,of, Load,I=7500/(120×0,8)=78,1A, -multiplication factor for stand by load=100%. Of continuous load+50% of intermittent load,max peak operating load=100% of continued load +59,% of intermittent load + 10% of stand by normal operation.load with growth. - Requireded: appliance tv reliable,running 200w,15,; starting , 2300+1200+100 rated outputs. -load listing calculation and generator sizing ration between absorbed power and rated -motor between 0-kw-15kw. Load -15kw-45kw,,45kw-150kw . Efficiency % output inputs , kW consumed by motor absorbe x efficiency x power Kvar consumer by motor =kw2+KVA Multiplication factor for continued load =50% Factor=110% of max normal operating load peak operating , growth factor °110% Of max peak generator size in 70 load factor peak load factor peak load factor peak operating load with operating load with growth factor . Version Francaise 8.Requirements: Poste de travaille bureau d etude: Accueil depanage et installation Electrique Sur renovation our neouf ,mise conformity de tableaux electrique, _ pour la protection de personnel mise en place d UN Nombre adequate d interrupter differential 30 mA contre incs die mise en place disjoncteur remise aux norm de securite ,eliminer Les risque d incendie et ou ekecteisation des personnel lies usage d une installation Electrique defectuese , - verification installation si bessoin -elimination des prise et interrupter defectuex des cable Mal isole , intervention Sur haute et base tension ,recherche de pannes, installation en Voix dinners, 8.1 electricite biocompatible, information,measure electromagnetic,mourn product -meaure et analyse des champs electromegnetic, Effect Sur la Sante CEM Liew exploision . -prevention et curating issue anormalie spectre. -CEM base frequency ligne HT et distribution 230v ,HT distribution appareillage domestic hyperfrequence pulse telephone Relais, telephone,detect WiFi,Bluetooth, -lorsqu on procedeba la measure de champs electrique et magnetiaue priorite frequement au cours , - Les measures la measure de la resistance de votre terre, La measure de champs electrique et magnitude. - la measure des champs magnetic Haut frequency realisation d une cartography de la pollution electromagnetic a votre habitations une etude completed realisat par rapport information Sur Les risque norme et seuil sensibilite , proposition de solution aux problems consent 8.1 required : -dimmensionnement et cablage de cable ,cequi relief Tous Les xomposant d UN system electrique Ce sont le cablage fournissent l energies source d'alimentation la distribution aux appareils aux Lumiere - type de circuit : chute tensions a 10%non critique 0,6m,,51-61,, -chutw tension a 3% critique 5A-200a, 0-2m , Calibre: maniere courant AwG American wire gauge method standard pour desigule diameter des file EST mesurant le diameter du conducteur measure uniquement course file,sans isolant ----calibre file .Europ,norm AwG 00,000,00, Diameter mm 11,68,. 10,40. 9,27. 8,25 Section 107.1. 84,9. 67,5. 53. Code couleur - tableaux principal coefficient global ks×ku=0,69 IB=(80+60+100+50)×0,69=20 coffee regime normal - etude d implementation d une ligne a haute tension our a Tres haute tension lignes aeriennes construction presentation. - l' etude d implementation d une ligne Mele etroitment Les

etude technique aux procedure administration le processus complet depend des regle en usage Dan's chaque pays cependant facing procede n EST . - l objectif poursuivit burns dbentendu realiser une ligne electrique fiabilie court minimal Mais s integrant parfait email Dan's l environment l evitment des obstacle eat difficult de passage fort que Tracee evitment des obstacle eat difficult passage font que rarement une ligne droite lots de procedure administrative le parties mise hey sont -les representant de l etat . Les minister charge de l ectricite de l urbanism. Les authorite regionanales prefecture. - Les authorite militaire.les elu Avec depute Les senateur le Conseil general public a EC Les association et organisation Les explotant propietaire. - calcul electrique logiciel note calcul Electrique haute et base tension eclairage public Bureau d etudes. -cance logiciel pour l etude reseaux Haut tension alimente courant alternating pour de tension comprise entre 10000V,et 246kv IL realise Les dimensions electrique Selin le norme nf. 13-200et ie. 60909..cebec 8.2 requirenent dimension reseaux hate tensions en fonction de via source d alimentation et quel que soir made d 'exploitation du reseaux mode Avec configuration court circuit minimum maximum mode normal our pertube et possible realiser fonctionnement different, -la dimensionnement de cables en fonction des courants admnissible et des contraintes thermique , - le Seoul de reglage de protection . - le calcul des temps de fusion des fusible selon course de fabricants . -les courantsde court circuit maximum substransitaire , transitaire permeant triphase et biphase symetrique ,ICC Crete courant coupe courant permanent et default terre . -les calcul des chute de tension Dan's Les canalisatiob electrique et aux bornes des recepteur en regime d 'etablir et au de marriage de moteur.longue du cable -resistance electrique specifie I=P/U Section cable effective. A=Ixezl/Ua ....UN=12v ,p=100W,L=18,8 long conduit cable 1.8 m long conduct cable 1.8 m 2.I=P/In > 100/12=8,3A . Section conduit cable A=Ixexlua=8,3×0,018×18105=0,54 m .normalise 1=1mm J=I/A >8,3A/1mm sq=8,3A density. -les dimensionnement des apparei

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